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**GREATER TORONTO AREA 3Rs ANALYSIS**  
**SOCIAL ENVIRONMENT TECHNICAL**  
**APPENDIX**

**DRAFT - NOVEMBER 1993**



**Ministry of  
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and Energy**



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**SOCIAL ENVIRONMENT TECHNICAL APPENDIX**

Prepared by Hardy Stevenson and Associates  
for  
Fiscal Planning and Information Management Branch  
Ministry of Environment and Energy

DRAFT - NOVEMBER 1993



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## 1.0 INTRODUCTION

### 1.1 Background

In 1989, the government of Ontario announced its commitment to meeting a Provincial target of at least 50% reduction of waste going to landfills and incineration by the year 2000. This target, actually a waste diversion target (to be achieved through waste reduction, reuse and recycling -- the 3Rs) was confirmed by the present government in 1990.

To facilitate the achievement of the 50% target, the Province introduced the *Waste Management Act, 1992*. The Act broadens the government's powers to reduce waste sent to disposal through a variety of means. It also vests powers in the Interim Waste Authority (IWA), an agency created to complement 3Rs activities, and to ease the waste disposal crisis in the Greater Toronto Area (GTA). The IWA is complying with its mandate by conducting environmental assessments to locate three long-term landfill sites in the GTA.

The GTA Regional Municipalities of Peel and Durham are each defined for the IWA process as separate "primary service areas". Metropolitan Toronto and the Regional Municipality of York have been defined as a separate combined primary service area. Each of the three defined primary service areas are proposed to receive one new landfill facility through the IWA's process. The fifth GTA Regional Municipality, Halton, has already obtained approval for a landfill site and thus is not part of the present siting process.

### 1.2 Purpose of Study

This study has two purposes, each of which relates directly to a requirement created by the *Waste Management Act*.

The first requirement pertains to waste estimates. Section 14 of the *Waste Management Act* requires the Minister of Environment and Energy to provide a written estimate as to:

- a) *the amount of waste that would otherwise be expected to be generated in the primary service area (i.e. each of Peel, Durham and Metro/York) during a twenty-year period that will not be generated because of waste reduction efforts; and*



- b) *the amount of waste that will be generated in the primary service area during a twenty-year period that will not need to be disposed of in the site because of the reuse or recycling of materials that are or could become waste.*

These waste estimates were provided to the IWA by Minister's letter dated May 15, 1992. A copy of this letter may be found in Appendix A of the GTA 3Rs EA Input Document. The current study provides additional analysis of 3Rs activities, in support of the waste diversion estimates previously provided.

The second requirement pertains to analyzing the 3Rs as "alternatives to" landfill waste disposal sites. Section 15 of the *Waste Management Act* requires that the IWA environmental assessments contain a description of, and statement of rationale for the 3Rs, as well as evaluate matters relating to the 3Rs as an alternative to the landfill waste disposal sites. By administrative agreement, MOEE committed to provide such a rationale and evaluation to the IWA for use in its environmental assessments. The present report fulfils this requirement.

### 1.3 Study Approach

The GTA 3Rs Analysis identifies and assesses alternative 3Rs systems, comprised of combinations of 3Rs programs, technologies and practices, that could reasonably be implemented in the GTA. It also determines the potential for each 3Rs system to divert waste over the twenty-year minimum life expectancy of the GTA landfill sites, and identifies the advantages and disadvantages of each system.

For purposes of the present analysis, an array of conceptually different 3Rs systems have been identified for addressing residential wastes, as well as for industrial, commercial, and institutional (IC&I) wastes. For each system, estimates of the amount of waste the system could potentially divert from disposal have been determined. An assessment, done on a non-site-specific, generic level and documented in this report, identifies the advantages and disadvantages to the environment of each potential 3Rs system, in keeping with the *Environmental Assessment Act*.

In conducting the 3Rs work, and providing estimates of waste that will not require disposal in the IWA established sites, MOEE is acting as a reliable authority in accordance with its legislative mandate, and not as the proponent or co-proponent of any of the 3Rs systems discussed. The alternatives presented in this report are not in any way structured as detailed implementation plans for the Province, the Regions



or the private sector.

#### **1.4 Purpose of the Social Environment Assessment and Study Objectives**

This technical appendix documents the social environment input into the GTA 3Rs analysis. The primary purpose of this social environment assessment is to identify and assess the effects to the social environment which may occur as a result of the implementation of a Residential 3Rs system within each of the four Regional Municipalities (Durham, Metro Toronto, Peel, and York) and an IC&I 3Rs system within the GTA. The results of this assessment are to serve as input into the overall 3Rs systems evaluation.

The study objectives of the social environment assessment are as follows:

- Identification of existing social environment conditions within each of the four Regional Municipalities.
- Prediction of social environment effects as a result of the implementation of each of the alternative 3Rs systems within each of the four Regional Municipalities.
- Analysis of the potential social environment effects including the development of mitigation measures for the purposes of identifying net effects.
- Ranking the systems in the four Regional Municipalities from the perspective of the social environment.

In addition, the Social Acceptability of each 3Rs system was analyzed and provided input to the evaluation contained in the Service Technical Appendix.

#### **1.5 Outline of Report**

The Social Environment Technical Appendix is organized into four chapters and eight schedules. This chapter provides the rationale for this 3Rs analysis. Chapter 2 is a description of the social environment analysis approach, method, data sources and study assumptions.

Chapter 3 is a description of the existing social conditions in the GTA and each of

the regions. It also includes a section on current 3Rs management within the GTA, and residential, municipal and IC&I attitudes and behaviour to 3Rs activities.

Chapter 4 is the evaluation of the Residential systems for each region and the evaluation of the IC&I systems.

## 2.0 APPROACH

This section outlines the approach used to identify potential effects to the social environment from 3Rs components and alternative 3Rs systems.

### 2.1 Overview

Generally, social impact assessments attempt to identify the significance, magnitude, and duration of the effects on the social environment. This study achieves this by understanding characteristics of the potentially affected people and communities, the views of those people and communities potentially affected, the residents' attitudes and perceptions related to the alternatives, and the vulnerability/sensitivity of residents and employees. The analysis also considers social effects on businesses, institutions and IC&I operators.

To begin the analysis, each component of each system was evaluated to determine the type and significance of the potential social effects on people, quality of life, lifestyle, community; institutions and businesses; and future generations, at regional and at GTA-wide levels.

The analysis also addresses whether the effects are likely to be local in nature (i.e., affecting one community or neighbourhood in the region) or whether they are likely to have region-wide effects. For example, 3Rs facilities (e.g., MRFs and composting facilities) may have noise, dust, odour, litter and truck traffic effects for local residents and the local community/neighbourhood. 3Rs programs, on the other hand, can have a broader influence on the attitudes and behaviour of residents and employees in a region and can require or lead to lifestyle changes. For example, they can encourage people in the regions to change their purchasing or waste management behaviour.

This component of the social impact analysis provides input to the assessment of the alternative 3Rs systems based on:

- The description of the existing and projected social and cultural environment of the GTA including demographic, lifestyle, housing and employment characteristics and attitudinal and behavioural data.
- The assessment and evaluation of the potential social effects of the alternative 3Rs systems. The assessment, based on the evaluation of net effects, addresses positive and negative effects and the appropriate

mitigation and enhancement measures.

In addition, the social analysis provides input to the evaluation of the level of service that each of the alternative 3Rs systems would provide through the assessment of the social acceptability of the systems and components. The social acceptability criterion is one of four used to assess the level of service of each system (see Service Technical Appendix, RIS).

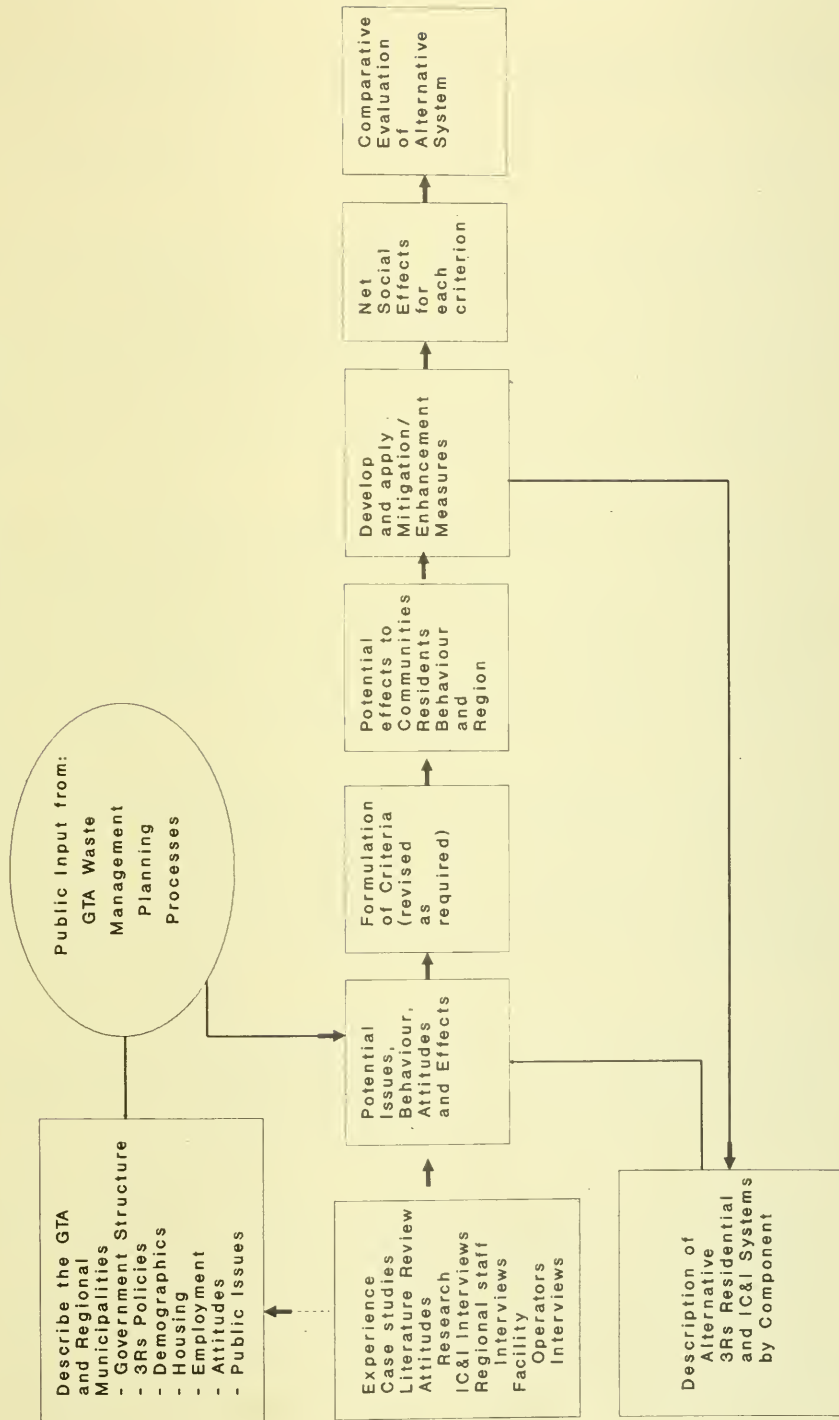
Further, the analysis addresses the types of social effects on local communities/neighbourhoods, institutions, community features and businesses and IC&I operations in each region for each residential system and in the GTA for the IC&I 3Rs systems. Because not all social effects will be of the same magnitude or occur in the same area, the social impact assessment considers the distribution of the social effects in the study area as a result of the implementation of each of the 3Rs systems. Where possible, judgements are made on the significance and magnitude of the effects (although these judgements are made without direct input from the public), and on whether or not the effects may be reduced/lessened through mitigation measures.

Figure 2.1 illustrates the study process which was followed to determine the potential social impacts and social acceptability of 3Rs systems in the GTA to 2015. It was based on social impact assessment processes used for facility assessments and for conceptual programs and plans (e.g., IWA, June, 1992; Ontario Hydro, 1988; 1990; and n.d.).

The first phase of the study involved an iterative process of data collection and the formulation of social criteria and indicators to guide the study process. As more data was collected and as refinements were made in the overall study approach, the social criteria and indicators were refined.

This phase involved collecting data which described the GTA and each of the Regions at an appropriate level of detail. Data applied to support the social analysis was also collected on attitudes, behaviour and social effects relating to other jurisdictions. Based on this research, a description of the GTA was prepared including current and projected demographics, housing and employment, resident,

FIGURE 2.1  
GTA 3Rs ANALYSIS SOCIAL IMPACT ASSESSMENT PROCESS



municipal and IC&I attitudes and behaviour to 3Rs, and public issues and concerns with 3Rs in the GTA.

The second phase involved an analysis of residential and IC&I 3Rs systems in two stages. The first stage involved the identification of net effects for the alternative system components at a generic GTA level. The generic analysis was based on a comprehensive set of 3Rs components for the existing and existing/committed systems (for a description of the systems see GTA 3Rs EA Input Document, October, 1993). Garbage collection was included as a component of all systems, because mechanisms to influence the amount of garbage placed out for collection (e.g., direct cost system) are included in each of the systems.

In the second stage, residential 3Rs Systems summary Net Effects Tables were produced for Durham, Metro Toronto, York and Peel, by modifying the generic net effects analysis to take into account the regional demographic, housing and employment characteristics, and the attitudes and behaviours identified for each specific region. Summary Net Effects Tables were also prepared for the IC&I systems on a GTA wide basis. The analysis did not address the effects of the systems on social acceptability in specific lower tier municipalities.

Some of the effects identified at the generic level were determined to be minor and were not carried forward to the Net Effects Tables for each regional analysis. The potential effects described in the Net Effects Tables may be significant and may occur throughout the life of the system. In many cases the magnitude of the effect was difficult to determine because the data was not available at the level of detail required. In some cases, mitigative measures may reduce the effects but not eliminate them.

In this second phase, general mitigation and enhancement measures were developed for the types of potential social effects identified to avoid, eliminate or minimize the negative effects and, where feasible, to enhance the positive effects. These measures were assumed to be implemented by the appropriate party(ies). The potential social net effects for each criterion for each system were then determined.

In the third phase, the systems were evaluated and ranked on a criterion by criterion basis and summary tables prepared. The systems were then ranked from a social perspective based on the criterion rankings.

The analytical method and techniques are described in more detail in the following sections.



## **2.2 Study Area**

The primary study area for the GTA 3Rs Analysis is the Greater Toronto Area (GTA), which consists of the regional municipalities of Durham, Metro Toronto, York, Peel, and Halton. The secondary study area for the social impact assessment includes the area beyond the municipal boundaries of the GTA as there may be components which cannot be addressed by the GTA municipalities alone (e.g., Ontario-wide policies which affect the Industrial, Commercial and Institutional sectors).

## **2.3 Time Frames**

The planning time frame for this study extends from 1996, the anticipated start date for the implementation of the alternatives, to 2015.

## **2.4 Scoping Resident and IC&I Attitudes and Behaviour, and Potential Social Effects**

An understanding of resident, municipal and IC&I attitudes and behaviours in response to 3Rs components is important in analyzing the social effects, and the efficacy, of the alternative systems. The analysis of existing and potential resident and IC&I behaviour and attitudes, and of the potential social effects, was based on data obtained from: the literature review; case study analysis; review of existing attitudinal research; a review of public concerns and issues expressed during other waste management projects in the GTA, and the IC&I association, municipal and facility operator interviews.

The research focused on a variety of municipal and IC&I waste management systems and provided valuable insight into their social effects and the attitudes and behaviour of persons to these systems.

### ***Potential Social Effects***

The implementation of any waste management system may have a variety of positive and negative social effects. While the social effects of more traditional waste management systems such as the blue box program are relatively well-known, those of more comprehensive 3Rs systems such as wet-dry have not been evaluated in detail. The research assisted in scoping the types of social effects that may occur

from the implementation of the 3Rs systems.

For households, there are likely to be a variety of potential social effects associated with some 3Rs alternatives, such as additional costs, odour, litter and traffic effects. There may also be some significant social effects associated with some processing facilities (e.g., composting facilities), while other facilities dedicated to only dry recyclables may have fewer social effects (possibly limited to noise and traffic effects). While mixed waste and centralized composting facilities are likely to have more significant social effects (e.g., additional costs, odour and vermin effects on neighbours).

3Rs systems may have regional employment and economic effects. (However, little data exists on these effects, including the net employment gains/losses from the implementation of the systems.)

Research and professional judgement suggest that there are likely to be local community effects from the construction and operation of 3Rs management facilities and broader social effects on the lifestyle and the regional economy and employment from the facilities and the programs and processes. There also are likely to be distributional effects relating to the issue of "who benefits and who pays?"

### *Social Acceptability*

The long-term success of residential and IC&I 3Rs programs will be based to a great extent on the attitudes and ultimately the behaviour of residents and institutions, commercial operators and industry. To be successful, the various 3Rs components will have to be socially acceptable. The research supports the analysis of the various components of the 3Rs systems by providing information on such issues as: who tends to participate; why people and businesses do or do not participate; and, how greater participation may be achieved. And, what is their willingness to pay for various 3Rs initiatives.

## **2.5 Social Impact Assessment Criteria**

The social criteria used to evaluate the effects of 3Rs systems over a 20 year period are different from those used to evaluate a site specific activity such as a landfill. A typical 3Rs system may consist of public and private facilities, public and private programs, regulations, incentives, and educational/promotion activities. Furthermore, there may be little or no data on site-specific locations. Therefore, the social criteria



have to address both the broad societal considerations as well as siting effects without a site-specific context.

Some of the Residential 3Rs systems support or encourage a change in individual 3Rs behaviours because they require people or individual households to undertake certain actions (e.g., source separation, recycling) and/or minimize the opportunities for engaging in behaviours which are not supportive of the 3Rs.

The systems favouring or supporting individual behavioural change directly addresses the goal of sustainable development - "to ensure that [development] meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission of Environment and Development, 1987, p.8). Meeting this goal will require the current generation to learn to adopt a lifestyle which decreases the pressure on natural resources, primarily through reducing consumption levels. And, it is as individuals or households that we make the vast majority of our consumer decisions rather than as communities.

Reduction has been placed at the top of the 3Rs hierarchy by the Province of Ontario. However, because the behavioural change required for reduction may be more difficult than for reuse and recycling (De Young, 1993), motivating individuals to consume less and reduce waste at source becomes central to the goal of sustainable development. This recognition of the primacy of individual behaviour and responsibility has driven a good deal of the conservation behaviour research over the past several years, i.e., it has focused on ways of changing individual behaviour in order to reduce the consumption of material goods and the generation of waste.

There is evidence in the literature that programs and processes which require individual responsibility and accountability (e.g., direct cost systems) have proven effective in bringing about, at least for the short term, improvements in 3Rs activities (Biocycle, 1990). There is also evidence of a motivational dynamic at work, in which the merits of individual actions "making a difference", once internalized, can be an important behavioural motivator (De Young et al., 1991).

The selection of the social criteria for this evaluation was influenced by:

- The goals of the environmental assessment.
- The types of 3Rs system components to be evaluated.

- The research on resident and public issues and concerns regarding 3Rs programs and components.
- Social criteria presented before other EA hearings
- Experience on and professional knowledge of environmental assessments and community impact management of facilities, programs and plans.

It is expected that all of the alternative 3Rs systems will offer a range of potential social benefits, including a more efficient use of resources and greater consideration for future environmental health. However, some systems may offer greater or lesser potential benefit than other systems.

The social impact assessment and evaluation criteria and the social acceptability criterion, indicators and rationale were developed based on the study team's understanding of the issues and scope of the overall study. The criteria and indicators (including the definition and rationale for each) used to assess the components of each of the 3Rs systems options are presented in Table 2.1. The Social Criteria Group contains three criteria: (1) Potential Local Community Impacts; (2) Potential for Broad Social Impacts; and (3) Distribution of Social Costs and Benefits. The social accountability criterion also provides input to the evaluation of the level of service provided by the system based on the potential behaviour or social response.

### *Social Impact Criteria Ranking*

To assist in ranking 3Rs system for the Criteria Group, an attempt was made to rank the criteria on the basis of the level of importance of the criterion relative to others, considering the magnitude, duration, significance, and certainty of effects.

The conclusion of the ranking process was that, without public input, no criterion could be determined to be more important than the others. As a result, different categories of importance did not emerge from the process and all three criteria were given the same ranking. Although the degree of certainty of the types of net effects identified is greater for potential local community impacts than for the other criteria, the magnitude of effects is generally uncertain.

TABLE 2.1  
SOCIAL ASSESSMENT CRITERIA AND INDICATORS

Criteria	Indicator	Definition	Rationale
IMPACT			
Social			
Potential Local Community Impacts	<ul style="list-style-type: none"> <li>• Potential effects on residents</li> <li>• Potential effects on special/sensitive groups</li> <li>• Potential effects on communities</li> <li>• Potential effects on community features and businesses</li> </ul>	<p>Projects, programs and processes can lead to positive and negatives changes in the lives of people, in their businesses and in their communities. Some components of the system, particularly facilities, could create negative impacts on nearby communities, people and businesses. This criterion measures the effect of change on individuals, groups of people, communities and businesses. The alternative systems will be compared on the basis of the potential effects on residents, special/sensitive groups, communities and community features and businesses. Effects on communities are included to address potential cumulative local social effects.</p>	<p>Some of the 3Rs systems contain public or private facilities, programs and processes which may create local community/neighbourhood impacts. Other programs, while leading to environmental benefit and social responsibility, may be considered by some to be disruptive to their day-to-day activities.</p>

Criteria	Indicator	Definition	Rationale
Potential for Broad Social Impact	<ul style="list-style-type: none"> <li>• Potential for lifestyle changes</li> <li>• Potential effect on employment</li> <li>• Potential effect on economic development</li> <li>• Potential effect on institutions, commercial enterprises and industry</li> </ul>	<p>This criterion focuses on regional employment, economic, and lifestyle changes initiated by the 3Rs systems. Changes may be required or may occur in the way residents, government, industry, institutions and agencies behave with respect to the 3Rs. The alternative systems will be compared on the basis of employment and economic development effects, their associated economic and institutional barriers and opportunities, and the effects on the broader social character.</p>	<p>Broad social impact considerations will address the potential positive and negative effects on the region. The 3Rs systems may affect the way residents, institutions and businesses behave. And, the behaviour of government, industry, agencies and associations can affect the level and type of 3Rs service possible. Each 3Rs system is likely to have direct and/or indirect effects on employment, economic development and lifestyle. Systems which promote changes in lifestyle which support or encourage greater longer term reduction, reuse and recycling and greater diversion of waste compare more favourably.</p>

Criteria	Indicator	Definition	Rationale
Distribution of Social Costs and Benefits	<ul style="list-style-type: none"> <li>• Distribution of socio-economic effects on industry and population groups</li> <li>• Distribution of lifestyle effects</li> <li>• Potential future generation effects of system</li> </ul>	<p>This criterion considers the distribution of socio-economic costs and benefits of the alternative 3Rs systems among population groups and generations.</p> <p>Various system alternatives will grant different levels of benefits to specific businesses and user groups, while introducing different levels of negative effect to others. The alternative systems will be evaluated on the basis of the types of social costs and benefits that may occur and who may be affected.</p>	<p>The social costs and benefits of the alternative 3Rs systems should be evaluated to determine if certain groups bear a greater share of the social costs. Ideally, it is preferable that those who bear the social costs also share equitably in the benefits. The social costs and benefits to future generations should also be addressed.</p>
<b>SERVICE</b>			
Social Acceptability	<ul style="list-style-type: none"> <li>• Participation in 3RS (current and future) by:               <ul style="list-style-type: none"> <li>- individuals</li> <li>- municipalities</li> <li>- IC&amp;I sector</li> <li>- special/sensitive groups</li> </ul> </li> <li>• Attitudes and perceptions toward 3Rs activities</li> <li>• Willingness to pay</li> </ul>	<p>This factor addresses the likelihood of success of an alternative based on current reasons for patterns of participation and on changing attitudes and perceptions toward 3Rs activities over the time horizon of the study.</p> <p>Social acceptance will be considered on a regional and GTA wide basis.</p>	<p>The resident, municipalities and the IC&amp;I sector must accept the 3Rs system for it to become fully operational. Preferable systems are those that have a high potential for being socially accepted. The criterion provides input to the evaluation of the level of service provided by the system based on the potential behaviour or social response.</p>

### ***Social Acceptability Criterion Ranking***

The criterion, "social acceptability" is one of four criteria in the Service Criteria Group (the others being : Reliability; Flexibility; and Performance), and is ranked second in importance. This criterion indicates whether the public is likely to reject or accept a system. It provides an indicator of whether residents are likely to participate in source separation and other programs that are fundamental to ensuring diversion performance.

## **2.6 Data Sources and Method**

In addition to data required to scope the resident, municipal and IC&I attitudes and behaviour, data was required for the social impact analysis and the evaluation of the social acceptability of the alternative 3Rs systems. The various data sources and the requisite research methodologies and techniques are discussed below.

### **2.6.1 Demographic Methodology**

Demographic, housing, and employment information was used in the GTA 3Rs analysis for three purposes: to forecast future waste generation; to assess whether future social characteristics will influence the achievement of waste diversion efforts; and to provide a basis for the assessment of potential social effects in each Region and the GTA.

Overall, data for the GTA 3Rs analysis was derived from an examination and compilation of data from sources including: Metro Toronto and the Regional Municipalities, Statistics Canada, Ministry of Treasury and Economics, Ministry of Revenue, Regional Assessment Offices and original research.

Demographic information was used in the GTA 3Rs analysis to determine the current population characteristics of each Region and how the population is changing. Such information assists in determining, for example, whether residents are generally older and perhaps less able to engage in strenuous 3Rs activities, or younger and possibly more enthusiastic about ensuring that their household is involved in waste diversion activities. Lifestyle and cultural information helps to determine whether trends in family formation or the ability to pay will encourage or hinder waste diversion activities in each Region. Cultural information, such as the language spoken in the home, is important in determining strategies for the enhancement of GTA 3Rs educational and promotional material and in identifying potential implementation



barriers (Hager, L.B., 1992; Bagby, Diangson and Patterson, 1992). This demographic information was used in the identification of potential effects and recommended mitigation/enhancement measures to overcome the barriers (Schedule H).

Municipal assessment and Statistics Canada Census data is the most accurate data available and has been used for historical and current population levels. Estimates of future population levels are based on data provided by the Office of the Greater Toronto Area (OGTA), and the planning departments of Metro Toronto and the Regional Municipalities of Durham, York, Peel and Halton. Telephone or personal interviews were conducted with staff responsible for population projections (Schedule G - List of Contacts). Reports were gathered and analyzed for consistency and approach. Where OGTA, Metro Toronto and Regional Municipal projections differ, Regional municipal projections to 2015 based on Clayton Research data were assessed and selected, except as noted.

The following additional assumptions were used in estimating future population (Davis, S. & Toombs, M., 1993). (Because the population, housing and employment projections are currently under review, the OGTA are unable to confirm the figures.) New projections will be applied in the revisions to this document.

### ***Durham Region***

Future population levels in Durham Region are derived from the consideration of three population forecasts. The first forecast was completed by the Region Planning Department based on 1986 Census population data with input from Clayton Research Associates (Regional Municipality of Durham, June - Oct, 1987). Population levels of 558,055 were projected for 2011. A second set of projections were completed by Clayton Research for the Greater Toronto Area Coordinating Committee (Clayton, 1989a). Low, base case and high projections were completed. Population levels of 673,000 were projected for 2011. The Region of Durham felt that the Clayton projections under-represented the actual fertility rate in Durham. A third set of projections were then completed by the Region and adopted by the IWA. This projection suggests population levels of 781,045 by 2015 (717,780 by 2011). The later Durham Region Planning Department estimates have been accepted by the IWA, Region of Durham and the Office of the Greater Toronto Area. Thus, population levels of 781,045 were also selected for this study. However, in reviewing the estimates, the Region of Durham notes that the figures are being updated and may be low (Brands-Stuart, R., 1993).

### ***Metro Toronto***

Three population projections were recently completed for Metro Toronto. The Office of the Greater Toronto Area, through Clayton Research Associates, used a conservative long term projection of 2.5 million based on a review of the Ministry of Treasury and Economics (MTE) and Metro projections (Clayton, 1989b). Work completed for the Greater Toronto Area within the Urban Structure Concepts Study (IBI, 1990a,b,c,d) assumed that a medium population forecast of 2.8 million would be achieved. The Interim Waste Authority (1991a) accepted the more conservative projections supported in Metro's Case E (Metro Toronto Planning Department, 1989, p. 15) for a 2011 target population of 2,527,400 (McCallum R. & Morgan, W., 1993). Case E implies a significant growth in Metro Toronto housing redevelopment trends and a significant release of land presently not used for housing.

Accepting the assumptions of more robust growth in the four Regions over the planning period, the GTA 3Rs analysis uses the Case E Metro Toronto projections. However, the 1991 - 1996 five year cohort was recalculated using interpolation techniques to be consistent with 1991 Census population data. The remainder of the projection to 2015 has been adopted.

### ***York Region***

Two sets of population projections have recently been completed for York Region. Initial projections completed for York Region by Hemson Consultants Limited are based on 1986 Census Canada population data. The Hemson survey estimated a 2011 population of 840,000. A second projection was completed in 1989 by Clayton Research Associates (Clayton, 1989a). This projection predicted 850,000 people in York Region by 2011. York Region is currently in the process of updating their population projections based on the 1991 census data and the information may not be available for some time.

It was observed that both York Region projections have under-estimated the actual Census population level of 504,981 for 1991. The Interim Waste Authority has adopted the Hemson projection to predict waste quantities (IWA, 1991a). Since the IWA projections are the most current York Region projections (based on Long Term Forecast for York Region; Hemson, 1989), this later projection has been selected for the GTA 3Rs analysis. However, the 1991 to 1996 cohort projections were adjusted by using the actual Census data and applying interpolation techniques to develop population levels in the intervening years. The remainder of the projection to 2015 has been adopted.



## ***Peel Region***

Three sets of population projections were completed for Peel Region with the most current being those conducted by the Regional Planning Department. Earlier projections completed by Clayton for the OGTA are more conservative in the expected population increase. IWA projections are based on the OGTA projections. Clayton and IWA estimates were not selected because they were based on 1986 Census data and under-represent the 1991 reported Census population levels. Current Peel Region projections address each of the years between 1991 and 2015 although they over-represent the 1991 Census population levels. Furthermore, the Region suggested that Peel generated projections be used as a base of analysis in the GTA 3Rs analysis. Thus, the more current Peel Region projections were selected (Mountford, P., 1993).

## ***Cultural and Lifestyle Trends***

How cultural characteristics and lifestyle trends in the Greater Toronto Area will change over the next twenty-five years is highly dependent on global trends, Canadian policies toward social development, immigration and inter-provincial relations, and policies and trends in the Province of Ontario. Given these factors, no analysis and projection of trends can predict the future with absolute of certainty. However, the potential lifestyles and cultural characteristics of residents in the Greater Toronto Area will have a significant impact on the efficacy of GTA 3Rs initiatives. In order to identify and assess changes in lifestyle and cultural characteristics for the GTA 3Rs Analysis to the year 2015, the analysis drew upon several studies (Canadian Urban Institute, 1991a & 1991b; Clayton, 1991; Hemson, 1989) of the changing behaviour and cultural characteristics in the GTA.

### **2.6.2 Housing Methodology**

Housing data is a significant factor in determining whether waste diversion scenarios must be adjusted because of differing mixes of apartments, townhouses, rental units, etc. in each Region. In addition, opportunities for waste diversion will differ depending on different dwelling types and tenure. For example, GTA 3Rs waste diversion scenarios must account for most tenants not paying municipal taxes directly and not having curb side pick-up.

Census housing data is used predominantly as a data source although it is

supplemented by assessment data, CMHC Survey of Markets reports (CMHC, 1993b) and local planning department estimates where census data is not complete or available. Clayton Research Ltd's (1991) household growth estimates for the GTA over the planning period were also adopted. Projected housing types over the planning period are Clayton projections.

### *Durham Region*

Two sets of household projections were also considered for the Region of Durham. Clayton Research (1989a) completed an initial set of projections for Durham on behalf of the Office of the Greater Toronto Area. Due to concerns with fertility rate assumptions for the Region, a second set of projections was developed and presented to Council through the Commissioners Report 90-204 (Regional Municipality of Durham, 1990a). These later projections were also prepared for the Greater Toronto Coordinating Committee and the Regional Planning Commissioners' Subcommittee on Population, Household and Employment Projections. Household projections by type are from the same source. However, these projections are based on 1986 Census data and have not been updated (Regional Municipality of Durham, 1990a).

### *Metro Toronto*

Two sets of housing data were considered for the Metro housing projections. The first set of data related to the Metro Planning Department assessment of long term housing requirements should a population of 2.5 million be achieved by 2011. This scenario involves a slightly higher rate of housing production up to the year 2011 and a slow down in construction after 2011. It also assumes greater public acceptance of medium density housing. The total anticipated under this scenario for 2011 is 1,056,000 units. In comparison, Clayton housing projections for the OGTA estimated a more conservative 1,005,106 households, 51,000 fewer than the Metro estimate. Because the Clayton projections are more conservative and because they were accepted by the OGTA, they have been selected for the 3Rs Analysis study. As Clayton reports the projections on the basis of 10 year cohorts only, interpolation techniques were used to identify housing units for the intervening years. The Clayton projections assume no growth in single detached housing in Metro after the year 2001. Growth in Metro will be the result of high rise and other housing types.

### ***York Region***

The most recent housing data in York Region was gathered by the York Region Planning Department for the period ending November 30, 1992. As updated housing projections are currently underway, York Region projections are based on Clayton (1989a,b) housing projections. An update of housing levels will be incorporated in the later stages of this study. Because 1991 Census data is available (Census Canada, Cat. 95-337), and the Planning Department has updated the information to the end of 1992, the York Region actual figure of 161,556 is used as a base household level on which projections are based. The remaining Clayton (Clayton, 1990) household estimates were accepted. Intervening years have been interpolated.

Data on the 1986 housing types is based on Census data as cited in the Clayton Population and Household forecast (Clayton, 1990). The 1991 housing type information has been updated to November 1992, as reported by the York Region Planning Department. The 1996 to 2015 estimates are based on Clayton (Clayton, 1990). Because the Clayton (1990) estimates are only reported by five year cohort, interpolation was used to estimate the intervening years. Clayton (1989) OGTA estimates were noted but were not selected because, while they more accurately estimate 1991 housing units, the housing projections tended to be more robust than the later Clayton (1990) projections used by the York Region Planning Department.

### ***Peel Region***

There have been no projections of household growth in Peel Region since 1989. However at that time, projections were completed by the Peel Region Planning Department and Clayton Consultants 'Base Case' projections for the Office of the Greater Toronto Area. In comparing the two sets of projections, Clayton's projections reflected more aggressive housing absorption over the short term - to 2001 - but return to a more conservative household growth level after that. Peel Region projections better represent the 1991 actual households based on Census count but estimate robust households growth over the long term compared to Clayton.

#### **2.6.3 Employment Methodology**

As Industrial, Commercial and Institutional (IC&I) facilities in the GTA are an important part of waste diversion efforts, information about employment assists in

locating the main centres of IC&I employment and expected areas of employment growth in the Greater Toronto Area. In addition, the industrial and commercial base is changing in the GTA, and GTA 3Rs waste diversion scenarios must reflect the anticipated changes. For example, waste diversion programs must acknowledge trends in the GTA such as the decline of industrial or manufacturing activities and expansion of the office and service sectors.

Two sets of data are relevant: employment data - numbers and occupations of people by their place of work location; and, labour force data - the numbers and occupations of people by their place of residence.

Current 1991 employment levels within all Regions have been estimated for the Office of the Greater Toronto Area (IBI, 1990a). Within the GTA, Metro and several Regions have also developed employment projections. However, Regional information is generally based on 1986 research sponsored by the Greater Toronto Coordinating Committee and carried out by Hemson Consultants Ltd. (Hemson, 1989). The most thorough employment projections for Metro and each Region were completed by Hemson Consultants Limited for the Greater Toronto Coordinating Committee 'Base Case' (Hemson, 1989 and IBI, 1990, Exhibit 2) and were selected as the most up to date information on numbers of employees in the GTA by Region to 2015.

The Hemson employment forecast assumes unconstrained growth in market trends, irrespective of the availability of infrastructure and services among area municipalities. The exception is Metro and Peel Region, as these areas have less vacant land available for development. While employment data is used for analytical purposes in this report, caution should be exercised. The use of 1989 employment projections as a base may be less reliable since Statistics Canada's Labour Force Survey estimated that the Greater Toronto Area lost 74,000 jobs between August 1991 and August 1992. Approximately 150,000 jobs were lost in the GTA between August 1990 and August 1991 (Metropolitan Toronto Planning Department, 1993).

To develop employment projections, Hemson used a 'top down' employment projection based on the Clayton Research age and sex forecast and the derivation of labour force participation rates. Assumptions were also made about unemployment and the amount of net commuting into each Region. The allocation of growth into Metro and each Region was based on the consideration of the potential for: major office uses; the development of employment lands; and, population related employment scattered throughout each community.

In terms of the type of IC&I activity as reflected by employment, 1981 data on employment by place of work in the GTA is derived from Statistics Canada data. Because 1991 Census employment data by place of work will not be available until 1994, and 1992 employment data is not available from Statistics Canada or individual Regions, Compusearch Micromarketing Data and Systems Limited was retained to identify Employment Data by Standard Industrial Classification for GTA Regions (Compusearch, 1993). Using an extrapolation of trends, the types of occupations of those employees over the planning period were projected.

The best available labour force data on the Greater Toronto Area is the 1986 Census. Labour force data, however, is not a good indicator of waste generation because it does not reflect the significant commuting to work which occurs in the GTA. It does, however, provide an additional source of information with which to compare IC&I trends. Since municipalities within the Greater Toronto Area have experienced both a robust and a recessionary economy in the intervening years, 1986 Labour Force by Place of Residence data was also examined.

The following is the specific analysis leading to the choice of these projections for each Region.

### ***Durham Region***

Durham Region employment projections were completed by Hemson Consultants Ltd. (Hemson, 1989) as cited in Region of Durham Commissioners Report No. 90-27 (Regional Municipality of Durham, 1990b). As report No. 90-27 provides estimates on the basis of 10 year cohorts, interpolation techniques were used to derive the employment projections for the intervening years. The Durham employment estimates were also selected by the Interim Waste Authority (1991b, p. 3-5).

### ***Metro Toronto***

Two sets of employment projections were identified for Metro Toronto: Metro Planning Department projections associated with the Strategic Plan; and Hemson employment projections prepared for the Greater Toronto Coordinating Committee. Metro Toronto treated the Hemson Employment Forecasts as a control total for the purposes of developing employment projections associated with the Strategic Plan. In general, Metro Toronto's estimate of 1,664,000 employees related to the 2011 medium case scenario (Metropolitan Toronto Planning Department, 1992) is slightly



less than the Hemson projection of 1,686,000. The Metro employment projections also assume that none of the Regions will achieve the employment targets identified by Hemson.

The Hemson projections were seen to be appropriate for adoption in the GTA 3Rs analysis as these projections received acceptance by the Regions and were adopted by the Greater Toronto Area Coordinating Committee for the Urban Structure Concepts Study (IBI, 1990a). Because Hemson and IBI used 10 year cohorts and because data for intervening years is required, interpolation techniques were used to identify values for intervening years.

While Hemson employment projections are used in this analysis, the likelihood is high that the employment is over estimated. The preliminary results of the 1992 Metro Toronto Employment Survey indicate that in the summer of 1992 there were 1.23 million jobs in Metro (full and part-time employees by places of work). This represented a 39,000 decline from 1991 and a further 78,000 decline from 1990. The largest job losses in all activities between 1991 and 1992 occurred in the manufacturing/warehousing sector (Metropolitan Toronto Planning Department, 1993).

### *York Region*

Two employment projections have recently been prepared for York Region. The first projections were completed in 1989 by Hemson based on Clayton Research Population projections. In 1990, Hemson completed employment projections (Hemson, 1990) using five year cohorts. Because these projections provide projections based on 5 year cohorts, and because they appear to be the most recent projections, they were used in the GTA 3Rs analysis.

### *Peel Region*

Peel Region completed employment estimates reflecting year end data in 1990 based on employment projections prepared by Hemson for the Greater Toronto Coordinating Committee. While the estimates are approximately the same as the Hemson estimates, Peel suggested that the Hemson estimates be used (Bladen, K., 1993).

#### **2.6.4 Regional Municipal Staff Interviews**

Interviews were held in April, 1993 with Regional Municipal staff throughout the GTA to obtain their views on the possible obstacles to, and potential for, increased 3Rs diversion in their Regions. Appropriate staff (e.g., senior planners, waste management commissioners, waste management program administrators) in the five Regions were identified (in consultation with RIS) as being the most knowledgeable staff in the Region on 3Rs, or as being the most familiar with the GTA 3Rs Analysis Project. A complete list of contacts and a summary of the interview information is presented in Schedule B.

The thirty minute telephone interview consisted of eighteen questions concerning issues such as: existing, possible and/or pending regional 3Rs policies; existing, possible and/or pending lower tier municipal 3Rs policies; and, perceived and/or documented 3Rs attitudes and behaviours in the residential and IC&I sectors. Certain key issues have been highlighted below in Sections 3.7 and 3.8. (see Schedule B)

#### **2.6.5 Industrial, Commercial & Institutional Sector Interviews**

Interviews were held with representatives of the IC&I Sector throughout the GTA to obtain their views on the possible barriers to, and potential for increased 3Rs diversion. A complete list of contacts and a summary of the interview information is presented in Schedule C. Certain key issues have been highlighted below in Sections 3.7 and 3.8.

The Industrial, Commercial and Institutional subsectors have a different nature of operations. The Institutional Sector includes schools, universities, hospitals, and prisons. The Commercial Sector includes hotels, restaurants, retail stores, and offices. The Industrial Sector includes factories, light industry, warehouses, and construction (Resource Integration Systems, 1991a). Appropriate IC&I associations involved in 3Rs programs/activities were selected in consultation with RIS.

IC&I association interviews were conducted in April and May, 1993. The IC&I associations interviewed were identified based on an analysis of IC&I waste generators in the Greater Vancouver Regional Districts (GVRD) since no equivalent information for the GTA was available at that time. The forty-five minute telephone interview consisted of twenty-three questions concerning issues such as: development of and participation in waste management initiatives of individual associations and

parent associations; obstacles to and opportunities for increased waste diversion in the IC&I sector and implementation of 3Rs programs; and regulations that have affected member associations. (see Schedule C)

## **2.6.6 Selected Facility Operator Interviews**

Interviews of selected facility operators were required to update the data from the literature review and provide a focus on the types of social effects 3Rs facilities may create.

Interviews were held with a variety of Facility Operators throughout the GTA and internationally. These included public and private, operating and non-operating and successful and unsuccessful facilities. A complete list of contacts and a summary of the interview information is presented in Schedule D. Key issues are summarized in Sections 3.7 and 3.8.

The interviews were conducted in April, 1993. The thirty minute interviews consisted of nine questions concerning issues such as: present and future 3Rs trends in the residential and the IC&I sectors; behaviours and attitudes pertaining to 3Rs practices in the residential and IC&I sectors; social and/or biophysical impacts and/or effects of facility operations; and, complaints registered because of facility operations. (see Schedule D)

## **2.6.7 Case Studies**

Case studies were analyzed to identify successful alternative 3Rs options and key 3Rs implementation factors. This involved: analyzing and identifying reasons for successes and lessons learned; identifying potential social effects of 3Rs operations; identifying operating procedures/practices which could cause social effects; and, identifying attitudes and behaviours related to 3Rs components and systems.

Each case study was divided into two sections: a descriptive section of the 3Rs component or system under examination, covering such matters as ownership, method, equipment, performance, documentation and surveys; and, an evaluation section focused on three issues: attitudes, impacts and applicability to the GTA. The descriptive sections can essentially be considered as factual in nature, while the evaluation sections consisted of the opinions of both the correspondents and the researcher. Summaries of the Case Studies have been presented in Schedule E. Key



issues have been summarized in Sections 3.7 and 3.8.

#### **2.6.8 Literature Review**

The purpose for conducting a literature review of 3R's research was to analyze the experiences and draw upon the insights of other jurisdictions, academic researchers, and practitioners in coming to terms with waste management issues.

The research attempted to identify "current" (i.e., published within the last decade) sources of literature on **attitudes, behaviours, opportunities, barriers and issues/concerns** related to the following:

- Consumer and household recycling activities, e.g., distinguishing recyclers from non-recyclers - social and other indicators, factors affecting overall participation rates;
- Backyard and centralized composting;
- Materials Recycling Facilities (MRFs); and,
- Waste management regulations, e.g., mandatory ordinances affecting both the IC&I sector and the general public, direct cost systems, etc.

A "Metroline" computerized bibliographic search of the available literature was undertaken through the Metropolitan Toronto Reference Library. In addition, a search was undertaken at the Research Library of the Recycling Council of Ontario. A number of computerized search indexes were consulted, including: The National Newspaper Index; Enviroline; Canadian Business and Current Affairs; Books In Print; and, Social SciSearch.

The literature review was helpful in identifying a number of reports, articles, surveys, case studies and research studies addressing many waste management issues. These included issues such as: Composting (Backyard & Centralized): Programs, Attitudes, Behaviour; Health Effects (Composting): Recycling Programs, Behaviours, Attitudes; and, IC&I Waste Reduction Programs, Behaviour, Attitudes. An Annotated Review of the Literature is presented in Schedule F. Key issues have been highlighted in Sections 3.7 and 3.8.

#### **2.6.9 Attitude Surveys**

The literature review included review of a number of public attitudinal surveys and focus group research. Generally, the surveys were conducted by private survey groups or consultants on behalf of some government body or organization and a few

for the private sector. The purposes for conducting the surveys were either to evaluate a specific program or to evaluate general behaviours, participation factors, opinions, etc. The majority of the surveys were telephone questionnaires, the three others were mail questionnaires and personal interviews. Statistical confidence in the data have been assumed. All of the specific 3Rs surveys reviewed were conducted in Ontario; some were conducted in the GTA. The more general "environmental" surveys were national.

These surveys were published between 1989 and 1993 and may reflect the influences of various externalities occurring over this time period. Some of the key factors were: economic conditions; waste export to the U.S.; environmental awareness; and the environment/economy link. This period encompassed a significant change in economic conditions from pre-recession to the beginning of a very sluggish recovery. During this time period there was also a rapid increase in waste export to the United States as a result of increased tipping fees. The heightened awareness of environmental matters of the late 1980s, the perceived landfill crisis and the landfill site search controversies in the GTA and many other municipalities have increased awareness and the perceived importance of the 3Rs. As well, the public has become increasingly aware of environment/economy links.

#### **2.6.10 Review of Public Comments on Waste Management Initiatives**

Information on past GTA and provincial waste management consultations were reviewed to identify issues and concerns related to the 3Rs. Information related to the following studies was reviewed:

- Solid Waste Environmental Assessment Project (SWEAP) Metro Toronto;
- Solid Waste Interim Steering Committee (SWISC) approach to landfill siting and waste management;
- Waste Reduction Office Waste Management Initiatives Papers; and
- IWA Landfill Site Search Public Consultation Documentation.

#### **2.6.11 Complaint/Compliance Survey of 3Rs Facilities**

Complaints registered with the Ministry of the Environment and Energy (MOEE) regarding the operation of a 3Rs facility are kept on file. A review of the files on the complaints and MOEE actions taken at 3Rs facilities within the GTA was undertaken by the MOEE. The preliminary information collected by the MOEE was reviewed

to identify if the complaints or non-compliance were related to effects on the social environment. The data did not indicate if mitigative measures were taken with respect to the compliant or case of non-compliance. The majority of complaints recorded were for odours from composting facilities.

## **2.3 Data Sources and Data Verification**

### **2.3.1 Data Sources**

The social assessment and the social acceptability evaluation required assembling and applying the data gathered through the methods and techniques described above and the information provided by the study team on costs, municipal finance and natural environment effects. Table 2.2 lists the sources of data used in the social analysis and social acceptability evaluation.

For the IC&I Sector, the data collection (literature review, case studies, and interviews) focused on the major waste generator sectors identified by RIS in their Greater Vancouver Area study (CH2M Hill Engineering Ltd., 1993). RIS staff indicated that the ranking of the per cent of waste generated for the GTA was likely to be similar to the ranking for the Vancouver area (See Table 1 in Schedule C).

### **2.3.2 Data Verification**

Data verification for the Social Environment research consisted mainly of collecting data from primary and secondary sources and providing summaries to the appropriate municipal, company and association representatives. The data verification activities are summarized below.

#### **2.3.2.1 Demographic, Housing and Employment Research**

Data verification for this research consisted of providing the completed statistical data for review to those responsible for the data in Metro Toronto, each of the Regional Municipalities and the Office of the Greater Toronto Area. The data was revised where necessary based on comments received.

TABLE 2.2  
SOCIAL ENVIRONMENT DATA SOURCES

Data Requirement	Data Source
Social effects of residential 3Rs programs	
<b>Demographic, Housing and Employment</b>	Statistics Canada, 1981, 1986, 1991 Ministry of Treasury and Economics Ministry of Revenue Regional Assessment Offices Dun and Bradstreet Limited Compusearch Ltd. Office of the Greater Toronto Area Metro Toronto and Regional Municipalities of Durham, York, Peel and Halton Planning staff interviews
<b>Potential Local Community Impacts</b>	
<ul style="list-style-type: none"> <li>• Potential Effects on Residents</li> <li>• Potential Effects on Special/Sensitive Groups</li> <li>• Potential Effects on Communities</li> <li>• Potential Effects on Community Features and Businesses</li> </ul>	Regional Staff Interviews Facility Operator Interviews Case Study Research Literature Review Existing Public Attitude Research (including public opinion surveys, focus group research)
<b>Broad Social Impacts</b>	
<ul style="list-style-type: none"> <li>• Potential for Lifestyle Changes</li> <li>• Potential Effects on Economic Development</li> <li>• Potential Effects on Employment</li> <li>• Potential Effects on Institutions, Commercial Enterprises and Industry</li> </ul>	Regional Staff Interviews Facility Operator Interviews Case Study Research Literature Review Newspaper Clippings IC&I Interviews Public Comments in 3Rs regs., waste management process, etc. Existing Public Attitude Research (including public opinion surveys, focus group research)

Data Requirement	Data Source
<b>Distribution of Social effects</b>	
<ul style="list-style-type: none"> <li>• Potential for Lifestyle Effects</li> <li>• Potential for Social Effects on Industry and Population Groups</li> <li>• Potential Future Generation Effects of System</li> </ul>	Regional Staff Interviews Facility Operator Interviews Case Study Research Literature Review IC&I Interviews Public Comments in 3Rs regs, waste management process, etc. Existing Public Attitude Research (including public opinion surveys, focus group research)
<b>Social Acceptability</b>	
<ul style="list-style-type: none"> <li>• Participation</li> <li>• Attitudes and Perceptions</li> <li>• Willingness to Pay</li> </ul>	Existing Public Attitude Research (including public opinion surveys, focus group research) Case Study Research Literature Review Facility Operator Interviews IC&I Interviews Public Comments in 3Rs regulations, waste management process, etc.

### 2.3.2.2 Facility Operator, IC&I and Regional Municipal Interviews

The data and verification process for the Facility Operator and Regional Municipal interviews involved the following steps:

- The results of the interviews were documented on an interview schedule which was sent for review to those interviewed.
- Comments received were incorporated into the interview schedule and it was finalized.
- If comments were not received a follow-up telephone call was made to ensure that the documentation was acceptable.

### **2.3.2.3 Case Study Research**

The data verification process involved the following steps.

- Following review of the material and the preparation of a draft case study, a formal interview was arranged to fill in data gaps and to probe for more qualitative perspectives. In some cases, the lack of material meant that the majority of the information for the case study was based on the interview.
- A second draft case study was prepared and sent to the contact persons for verification. Verification was carried out either by phone or fax, comments were incorporated and the case study completed.

## **2.4 Assumptions**

The following assumptions were used in the social environment evaluation of the residential and IC&I 3Rs systems. (For broader study assumptions see EA Input Document, July, 1993)

### **Analysis**

- The planning period for all systems is 1996 to 2015.
- The analysis is generic; specific sites/locations for new facilities for each of the systems are not considered.
- The existing system is to be analyzed to the same level of detail as the other systems.
- The systems on which the analysis is based will be applied to an entire region, regardless of the division of responsibility for waste management within the region.
- Markets will be available for the recycled materials and compost. An increased flow of materials in any given region will lead to improved economies of scale for recycling industries and could lead to stability in markets.
- The social effects from an increased flow of dry materials without construction of a new facility(ies) or expansion of existing facilities is not likely, on its own, to be sufficient to rank one system higher than another.



- All rural households are served with curbside collection of garbage and will be served with curbside collection of recyclables and compostables for the appropriate systems (under review).
- There will be increased use of reuse centres for all systems.
- The administrative and implementation costs to lower tier municipalities associated with the direct cost system will be off-set or funded by other levels of government; revenue from the direct cost system will be used to off-set waste management costs.
- Community recycling facilities can have some of the same effects as depots and transfer facilities; primarily nuisance effects.
- Waste regulations identified in the IC&I systems will be applied equally throughout the Province.
- IC&I System 2 (Existing/Committed) (the new provincial 3Rs regulations) are not onerous for large and environmentally aware IC&I generators (Loblaws, GM, Sunnybrook Hospital, etc.). The actions required in the provincial regulations have already been incorporated by many IC&I generators. The analysis of systems 3 to 6 assumes enforcement of the regulations and the same level of compliance.

### **Mitigation**

- All mitigation measures identified will be implemented effectively.
- The 3Rs systems developed for this study cannot be modified to mitigate potential impacts on special or sensitive groups. For example, wet-dry household bins may be difficult to move by elderly people. Mitigation cannot include smaller bins.
- Mitigation measures that combine the dominant components of systems can not be applied (e.g., direct cost for garbage can not be applied as mitigation to the anticipated reduction in source separation in the wet/dry and mixed waste systems).

### **Evaluation**

- 3Rs behaviour and sustainable development are beneficial in the short and long term. Systems which promote this behaviour may be ranked higher.



- Distributional effects associated with current and future generations are important. Greater consideration is given to the potential effects on future generations. The current generations' responsibilities to future generations includes: managing our waste in such a manner to pass on to the future as few management responsibilities as possible; and reducing consumption of non-renewable resources.
- The public is willing to accept some inconveniences to help reduce waste and improve the environment.

### **Limitations**

Public input and attitudes are very important to the analysis as they identify the types of public concerns, issues and recommendations related to 3Rs Systems. In Phase I, direct public input was not provided to the analysis of alternatives. However, a review of public input to other GTA waste management planning processes and public attitudinal surveys was undertaken.

In Phase II of the study, more extensive public consultation and a behavioural survey will be important elements to achieving greater public involvement and to enhance the work undertaken in Phase I.

## REFERENCES

Bladen, K., 1993, Planning Department, Regional Municipality of Peel. Personal Communication with D. Hardy, Hardy Stevenson and Associates, February 8, 1993.

Brands-Stuart, R., 1993, Planning Department, Region of Durham. Personal correspondence to D. Hardy, Hardy Stevenson and Associates, March 18, 1993.

Canada Mortgage and Housing Corporation, (January, 1993b), Local Housing Market Report, Toronto.

Canadian Urban Institute, (1991a), The Greater Toronto Area: an Urban Region, WP-1, Urban Focus Series: Toronto.

Canadian Urban Institute, (1991b), Metro in Transition: An Overview of Demographic, Economic and Public Policy Trends and their Implications for the Social Development Strategy of Metropolitan Toronto, Urban Focus Series: 90-10, Toronto.

C.H. 2M Hill Engineering Ltd. (in association with KPMG, Peat Marwick Stevenson & Kellog and RIS Ltd.), 1993, Greater Vancouver Regional District Waste Flow and Recycling Audit.

Clayton Research Associates Ltd., (October, 1989a), Projections of Population and Households in the Greater Toronto Area. (Prepared for the Office of the Greater Toronto Co-ordinating Committee and The Regional Planning Commissioners' Subcommittee on Population Projections).

Clayton Research Associates Ltd., (October, 1989b), Projections of Population and Households in the Greater Toronto Area: Technical Volume. (Prepared for the Office of the Greater Toronto Co-ordinating Committee and The Regional Planning Commissioners' Subcommittee on Population Projections).

Clayton Research Associates Ltd., (December, 1990), Review of Population Projections for the GTA: One Year Later. (Prepared for the Office of the Greater Toronto Area).

Clayton Research Associates Ltd., (December, 1991), Migration Trends in the Greater Toronto Area. (Prepared for the Office of the Greater Toronto Area).

Davis, S., 1993, Office of the Greater Toronto Area. Personal Communication with D. Hardy, Hardy Stevenson and Associates.

De Young, R., 1993, "Changing Behavior and Making it Stick", Environment and Behaviour, July, 1993: 485-503.

De Young, R. et al., 1991, Individual Source Reduction Behaviour: A Study of the Effect of Environmental and Economic Motivational Information, School of Natural Resources: University of Michigan.

Hemson Consulting Ltd., 1989, Employment Forecasts, The Greater Toronto Area, to 2031 - Appendices. (Prepared for the Greater Toronto Coordinating Committee and the Regional Planning Commissioner's Sub-Committee on Population, Household and Employment Projections).

Hemson Consulting Ltd., 1990, York Region, Population and Household Forecast, York Region Planning Department.

IBI Group (in Association with Stephen G. McLaughlin Consultants Inc.), (June 1990a), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 1, Description of Urban Structure Concepts. Greater Toronto Coordinating Committee.

IBI Group (in Association with Stephen G. McLaughlin Consultants Inc.), (June, 1990b), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 2, Minimal Growth Option. Greater Toronto Coordinating Committee.

IBI Group (in Association with various consultants), (June, 1990c), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 6, Human Services. Greater Toronto Coordinating Committee.

IBI Group (in Association with various consultants), (1990d), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 7, Comparison of Urban Structure Concepts. Greater Toronto Coordinating Committee.

Interim Waste Authority Limited, (1991a), Draft Approach and Criteria for Metropolitan Toronto/York Region Landfill Site Search, Environmental Assessment Document I. August.

Interim Waste Authority Limited, (August, 1991b), Draft Approach and Criteria for

Durham Region: Landfill Site Search, Environmental Assessment Document I.

Interim Waste Authority Limited, 1992, The Long List of Candidate Sites For Peel Region Landfill Site Search Volume 2 of 2 - EA Document II Part 2. June.

McCallum, R. & Morgan, W., 1993, Metropolitan Toronto Planning Department. Personal Communication with D. Hardy, Hardy Stevenson and Associates. (The Scenario's report provides no preferences. As long as the MOE projections are between 2.5 and 2.8 million, the figures are acceptable as a target).

Metropolitan Toronto Planning Department, (April, 1989), Projections and their Policy Implications, Research and Policy Divisions.

Metropolitan Toronto Planning Department, 1992, Key Facts, 8.4, Employment Distribution within the Greater Toronto Area.

Metropolitan Toronto Planning Department, (January, 1993), Metro Facts. Research and Special Studies Division.

Mountford, P., 1993, Planning Department, Region of Peel. Personal Communication with D. Hardy, Hardy Stevenson and Associates, March 22, 1993. (Mr. Mountford informed HSA that the population and employment statistics are acceptable).

Ontario Hydro, 1988, Little Jackfish River Hydroelectric Project Socio-economic Assessment Of The Generation Facilities. Social and Community Studies - Project Section Community Studies and Public Hearings Department Corporate Relations Branch. Report No. CSPH 88001.

Ontario Hydro, 1990, Big Chute GS Redevelopment Environmental Assessment. April.

Ontario Hydro, ND, Providing the Balance of Power: Ontario Hydro's Plan to serve Customers' Electricity Needs: Environmental Analysis. Ontario Hydro.

Regional Municipality of Durham, (1990a), Commissioners Report No. 90-204, to Planning Committee. Population Forecasts for the Region of Durham and Area Municipalities by Five-Year Age Groups. September.

Regional Municipality of Durham, (1990b), Commissioners Report No. 90-27, to Planning Committee. January.

The Staff of Biocycle, 1990, The Biocycle Guide To Collecting, Processing and Marketing Recyclables. The J.G. Press, Inc: Emmaus, Pennsylvania.

Toombs, M., 1993, Office of the Greater Toronto Area. Personal Communication with D. Hardy, Hardy Stevenson and Associates.

World Commission On Environment And Development, 1987, Our Common Future, Oxford University Press: New York.

### **3.0 EXISTING SOCIAL ENVIRONMENT CONDITIONS**

The existing social environment of the GTA is described through the analysis of demographic, housing and employment characteristics and trends, a description of residential/municipal attitudes and behaviour; and Industrial, Commercial and Institutional Attitudes and Behaviour, and an outline of the legal, regulatory and policy framework.

#### **3.1 Greater Toronto Area**

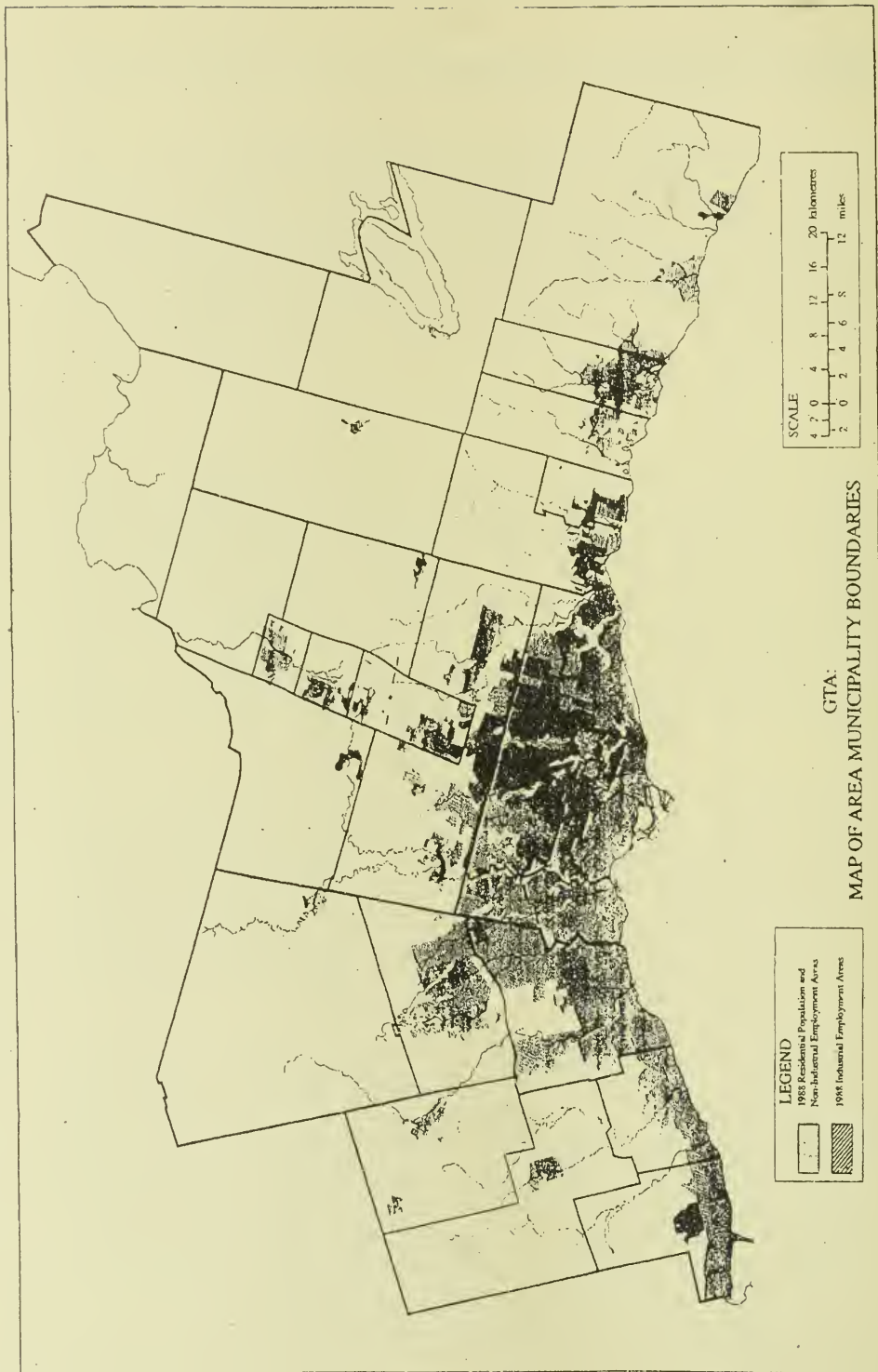
##### **3.1.1 Description**

The Greater Toronto Area (GTA) consists of five regional governments, including Metropolitan Toronto, the Regional Municipalities of Durham, Peel, York, and Halton and the 30 area municipalities constituting these regions. It is the most populous urban region in Canada and comprises 41 percent of Ontario's population and 14.7 percent of Canada's population (Canadian Urban Institute, 1991a). The GTA extends over 7209 square kilometres of land located between Lake Ontario to the south and Lake Simcoe to the north (Figure 3.1). Its population at the end of 1992 is estimated to be 4,324,997 inhabitants. The GTA has experienced considerable growth since the early 1980s and will continue to be the major growth centre of the Province of Ontario over the planning period.

The boundaries of the GTA are political in origin and do not represent any unique geographical or ecological unit. The majority of urban development within the GTA is concentrated along the northern shores of Lake Ontario, with intermittent development in the east, a continuous band of development in the centre and west, and a few smaller centres further inland, to the north. The remainder of the GTA consists of rural development. Development in the GTA does not end abruptly at its western limits, but continues onward toward Hamilton-Wentworth, with important linkages to Kitchener-Waterloo and other municipalities.

The 1990 Urban Structure Concepts Study (IBI, 1990a,b,c,d) subdivides the total GTA land area of 1,781,500 ac (720,973 ha) into two broad categories: urbanized land occupying 376,400 ac (152,329 ha) or 21 percent of the GTA; and the residual, which is mostly rural, of 1,405,100 ac (568,644 ha) or 79 percent of the total. The urban lands are further subdivided into 290,000 ac (117,363 ha) of residential and non-industrial employment (16 percent of total GTA and 77 percent of urbanized land) and 86,400 ac (34,966 ha) of industrial (5 percent of total GTA and 23 percent of urbanized land). The overall gross urban density (residents plus employees divided by urbanized area) of the GTA in 1988 was 15.4 persons/ac (38.0 persons/ha).





**Figure 3.1**



### **3.1.2 Decision-Making Support for the GTA**

The GTA is not a legal jurisdiction. Decision-making occurs either at the provincial level or locally through the two-tiered system of regional and area municipalities which constitute the GTA. There are, however, a number of agencies which were created in order to support decision-making within the GTA. These include the following:

#### *Office for the Greater Toronto Area*

The Office for the Greater Toronto Area (OGTA) is responsible for coordinating the Ontario government's policies, programs and projects designed to ensure that the Greater Toronto urban area remains environmentally and economically attractive as it manages significant growth. Activities and initiatives carried out by the OGTA usually require the co-operation of several provincial ministries and agencies as well as the five upper-tier regional municipalities and thirty lower-tier area municipalities.

#### *Greater Toronto Coordinating Committee*

The Greater Toronto Coordinating Committee (GTCC) is a body of Municipal Chief Administrative Officers established to coordinate information exchange, research priorities and generate common data to be used by municipalities and provincial ministries.

#### *Interim Waste Authority*

The Interim Waste Authority is a Crown agency with a mandate to establish three long-term landfill sites in the GTA. The three landfill sites will be located as follows: one site in Peel Region to serve Peel; a second site in Durham Region to serve Durham; and a third site in Metro Toronto or York Region to serve Metro and York. Each landfill is to be designed with sufficient capacity to serve the needs of the residents in its respective area for at least twenty years.

### **3.1.3 Demographic Characteristics**

Demographic data was used in the GTA 3Rs Analysis to determine the current population characteristics of each Region, how the population is changing and to calculate future waste projections. Demographic information also assists in determining, for example, whether residents are generally older and perhaps less able to engage in strenuous 3Rs activities, or younger and possibly more enthusiastic about ensuring that their household is involved in waste diversion activities.

### 3.1.3.1 Population

As indicated on Table 3.1, the Greater Toronto Area has registered a 1991 population of 4,235,756 representing growth of 10.2 percent from 1986. Within the Greater Toronto Area, Metro Toronto has over half of the population at 2,275,771, representing 53.7 percent of the total population with the rest being distributed among the four Regional Municipalities. The next largest population concentration occurs in Peel Region with 732,798 residents and 17.3 percent of the GTA population.

York Region and Durham Region have similar population levels. Halton Region has the smallest population of the area. York, Durham and Halton Regions respectively have 11.9, 9.6 and 7.3 percent of the population of the GTA.

Several recent studies have addressed potential growth and development scenarios in the GTA. These studies were examined in the development of the GTA population, housing and employment projections.

The Greater Toronto Coordinating Committee sponsored Clayton Research Associates Limited to complete population and household projections by ten year cohorts to 2031 (Clayton 1989a; 1989b; 1990; 1991). Clayton population projections have been influential in predicting future population and housing levels in the GTA. Clayton assumes:

- lower net migration to the GTA over the longer term;
- international migration as an increasingly important source of growth to the GTA;
- the recent recession related population losses in the GTA were due to interprovincial migration (the outflow of population to other Provinces) and intra-provincial migration (the outflow of people to adjacent regions, e.g., Simcoe County and Waterloo Region);
- as the economy recovers, there will be moderation of the loss of migrants to other parts of Ontario and other provinces;
- there will be an increasing share of population growth in suburban regions.

Clayton Research Associates Ltd. assumes a long-term population forecast of roughly 6 million people in the GTA by 2021. Through the Office of the Greater Toronto Area, Metro Toronto and the Regional Municipalities have accepted the Clayton Research projections.

TABLE 3.1  
POPULATION LEVELS

District	Mun.	1981	1986	1987	1988	1989	1990	1991
Metro Toronto	East York	2,110,973	2,175,900	2,128,520	2,133,559	2,130,855	2,137,204	2,275,771
	Etobicoke	99,116	97,051	96,705	96,497	95,662	94,701	102,696
	North York	296,277	297,389	295,051	293,433	294,958	296,107	309,933
	Scarborough	560,899	551,318	550,698	544,560	542,742	548,040	562,564
	Toronto	428,264	461,261	470,406	470,406	470,209	470,670	542,598
		599,282	612,290	590,215	597,126	594,051	595,074	635,395
		132,336	132,673	131,610	131,537	131,413	132,612	140,525
Durham	Okawa	283,639	326,179	340,570	347,837	385,480	397,540	409,070
	Ajax	117,519	123,651	124,700	120,904	132,135	133,910	129,344
	Newcastle	25,475	36,550	40,085	45,046	49,950	52,825	57,350
	Pickering	32,229	34,073	36,130	37,769	43,850	45,915	49,479
	Whitby	37,754	48,959	53,055	56,132	62,980	65,315	68,631
	Brock Twp.	36,698	45,819	48,605	49,948	55,310	57,245	61,281
	Seabrook Twp.	9,259	10,003	10,145	10,082	10,755	10,935	11,057
	Uxbridge Twp.	13,498	15,229	15,675	15,675	17,720	17,710	17,810
		11,207	11,895	12,175	12,281	13,270	13,685	14,090
Halton	Burlington	250,698	271,389	275,945	284,994	291,600	297,650	313,136
	Haltim Hills	112,940	116,675	117,562	120,098	122,300	124,599	129,575
	Milton	34,507	35,570	34,360	34,189	34,800	35,730	36,816
	Oakville	28,090	32,037	30,682	30,115	30,500	30,900	32,075
		75,162	87,107	93,341	100,936	104,000	106,500	114,670
Peel	Brampton	490,730	592,170	636,475	667,445	702,450	724,530	732,798
	Mississauga	149,030	188,500	204,625	214,265	227,710	232,465	234,445
	Caledon	374,055	374,055	399,835	419,700	440,500	457,275	463,388
		26,645	29,665	32,015	33,480	34,240	34,790	34,965
York	Vaughan	252,053	350,602	386,103	409,292	442,022	466,791	504,981
	Aurora	29,674	65,058	80,012	88,475	97,685	103,072	111,359
	East	16,267	20,905	23,586	24,545	26,426	27,778	29,454
	Gwillimbury	12,565	14,115	16,115	16,513	17,199	17,683	18,367
	Georgina	20,111	22,486	22,372	22,587	24,360	26,675	29,746
	Markham	77,037	114,597	121,950	129,501	136,924	141,880	153,811
	Newmarket	29,753	34,923	36,575	37,277	38,785	40,566	45,474
	Richmond Hill	37,778	46,766	52,103	57,082	66,436	73,739	80,142
	Whitchurch	13,557	15,135	17,007	16,705	16,963	17,683	18,357
	Stouffville							
Total GTA	King Twp.	15,188	15,951	16,383	16,607	17,224	17,775	18,121
		3,388,093	3,716,240	3,764,613	3,843,127	3,952,407	4,023,745	4,235,756

Source: Ministry of Treasury and Economics, 1989, and municipal assessment data

To determine where growth may occur within the GTA, the Greater Toronto Area Coordinating Committee conducted case study analysis of three growth concepts relating to the future of the Greater Toronto Area (IBI Group, 1990). The IBI case studies reflect three different potential scenarios for future population growth in the GTA: spread, nodal and central. Each of the concepts assumes 2021 population levels of 6.02 million people and 3.44 million jobs.

While IBI did not address waste generation, three implications of this case study analysis are important for the projection of social dimensions related to the GTA 3Rs analysis:

- the rate of waste production due to the construction and occupation of new single family homes may decline in Metro Toronto as most of the land for these homes has been developed and population growth will be slower;
- waste origin assumptions will have to consider that there are significant options for other housing type growth in Metro Toronto through the development and redevelopment of some sites and intensification; and,
- greater population and housing growth will occur in the four Regional Municipalities over the planning period, thus proportionally more residential waste will be generated in these areas.

Population growth in the Toronto Census Metropolitan Area (CMA) is being driven primarily by immigration although it is currently at 60 percent of the late 1980s level (CMHC, 1993a). As seen on Table 3.2, Clayton Research Associates indicates that Peel and York Regions grew fastest over the last decade and they will continue to do so.

TABLE 3.2  
SHARE OF POPULATION GROWTH BY REGION (BASE PROJECTION) (PERCENT)

	1981-1986	1986-1991	1991-11	2011-2031
Metro	18	14	8	14
Durham	14	17	21	20
York	31	30	29	26
Peel	32	29	27	24
Halton	6	10	15	16

Source : Clayton Research Associates, 1991

However, over the later phases of the GTA 3Rs planning period, Durham Region is also expected to experience greater population growth. Overall, the Regional Municipalities are expected to absorb significantly greater growth than Metro Toronto to the year 2015 and beyond. By 2011, Durham, York and Peel Regions are anticipated to capture approximately 77 percent of the growth in the Greater Toronto Area.

The population projections selected for the GTA 3Rs analysis are presented in Table 3.3, Population Projections by Region.

### **3.1.3.2 Lifestyle and Culture**

Lifestyle and cultural data (e.g., age, income and other social characteristics) are important to the analysis of alternative 3Rs systems because the lifestyle and cultural context effect how 3Rs programs are accepted and the factors contributing to their implementation.

For the GTA 3Rs analysis, the efficacy of waste diversion scenarios may also be influenced by the changing lifestyle and cultural composition of the population. How people use their time, their attitudes and values influence involvement in 3Rs initiatives. "Cultural data" is considered because, educational programs and other GTA 3Rs components must be sensitive to the potential influence of language and tradition on the extent of adoption of GTA 3Rs options. "Age" provides an indication of whether waste diversion should be oriented to a younger population, or whether the Region is characterized by an older population possibly less able to participate in some of the more physical diversion activities. "Family status" indicates the lifestyle of people who may be able to participate in waste diversion activities. "Income levels" assist in the understanding of the ability of residents to afford GTA 3Rs diversion activities that may involve some cost.

#### *Culture*

Cultural data is important to the analysis of alternative 3Rs systems because the cultural context affects how 3Rs are accepted and the factors contributing to their implementation. Table 3.4 indicates that the current language make-up within the GTA varies considerably. The diversity of cultural groups will continue to grow over the planning period.

The nature and extent of cultural change over the planning period is strongly influenced by Federal immigration policy. Between 1986 and 1991, 75 percent of the 154,000 immigrants to the Metro Toronto area were from Asia, the Caribbean, Latin America and Africa. Significant numbers have also immigrated from Poland and Portugal



(Canadian Urban Institute, 1991b). At least 40 percent of the immigrants do not have a functional command of English and the rate is high among people whose mother tongue is Chinese, Vietnamese, Punjabi, Spanish and Portuguese. Future immigration priorities may shift toward ecological refugee areas such as parts of sub-Sahara Africa.

**TABLE 3.3**  
**POPULATION PROJECTIONS BY REGION**

YEAR	Metro Toronto	Durham	Halton	Peel	York	GTA Total
1991	2,275,800	409,075	313,136	744,700	504,981	4,247,692
1992	2,298,031	422,825	318,893	763,000	522,248	4,324,997
1993	2,320,480	438,380	324,756	784,500	540,106	4,408,222
1994	2,343,148	453,880	330,727	808,800	558,575	4,495,130
1995	2,366,037	469,335	336,807	833,500	577,675	4,583,354
1996	2,389,150	484,745	343,000	859,300	597,459	4,673,654
1997	2,404,140	500,120	351,538	879,500	615,017	4,750,315
1998	2,419,130	515,450	360,290	900,700	632,605	4,828,175
1999	2,434,120	530,750	369,259	921,900	650,193	4,906,222
2000	2,449,110	546,005	378,452	953,100	667,781	4,994,448
2001	2,464,100	561,230	387,873	974,300	685,370	5,072,873
2002	2,470,430	576,425	397,529	991,100	701,325	5,136,809
2003	2,476,760	592,125	407,425	1,007,900	717,280	5,201,490
2004	2,483,090	607,790	417,568	1,024,700	733,235	5,266,383
2005	2,489,420	623,420	427,963	1,041,500	749,190	5,331,493
2006	2,495,750	639,025	438,617	1,058,100	765,143	5,396,635
2007	2,502,080	654,600	449,536	1,072,100	780,277	5,458,593
2008	2,508,410	670,160	460,727	1,086,100	795,411	5,520,808
2009	2,514,740	685,690	472,197	1,100,100	810,545	5,583,272
2010	2,521,070	701,740	483,952	1,114,100	825,679	5,646,541
2011	2,527,400	717,780	496,000	1,127,900	840,019	5,709,099
2012	2,532,890	733,770	508,347	1,139,500	853,042	5,767,549
2013	2,538,380	749,695	521,002	1,150,500	865,270	5,824,847
2014	2,543,870	765,465	533,972	1,162,000	877,498	5,882,805
2015	2,549,360	781,045	547,265	1,173,500	889,726	5,940,896

Source: Clayton Research Associates Ltd., 1990, Regional Municipalities and Hardy Stevenson and Associates

Table 3.4 demonstrates a rise in language diversity, from 1986 to 1991 within the GTA. Overall, as the third largest language group, the Chinese population appears to be the fastest growing of the language groups in the GTA. Polish speaking people also increased as a proportion of GTA population. The English, Italian and German speaking cultural groups each lost proportionate representation.

As a result of the growing cultural diversity GTA 3Rs education options, particularly those geared to education in the home, will have to meet a range of linguistic requirements. Where 3Rs components are to be implemented on a neighbourhood level, waste diversion programs must be cognizant of distinct neighbourhoods and the need to tailor these programs to meet local language and cultural conditions.

TABLE 3.4  
SHIFTS IN LANGUAGE DIVERSITY

Mother Tongue		English	French	Italian	German	Chinese	Portug	Polish	Other
Durham	1981	88.1	1.7	n/a	n/a	n/a	n/a	n/a	10.2
	1986	90.2	1.6	1.2	1.5	.3	.3	.7	4.3
	1991	89.1	1.8	1.2	.6	1.2	.4	.9	4.9
Halton	1981	85.8	1.9	n/a	n/a	n/a	n/a	n/a	12.3
	1986	87.6	1.7	1.4	1.8	.4	1.1	.6	5.3
	1991	86.2	1.7	1.5	1.6	.7	1.2	.8	6.2
Peel	1981	77.8	1.7	n/a	n/a	n/a	n/a	n/a	20.5
	1986	78.7	1.6	4.4	1.6	1.1	2.6	1.1	9.0
	1991	72.8	1.5	3.8	1.2	2.1	3.2	2.1	13.3
Metro	1981	67.7	1.5	n/a	n/a	n/a	n/a	n/a	30.8
	1986	69.1	1.3	6.7	1.6	3.9	2.8	1.4	13.1
	1991	64.2	1.3	5.3	1.3	6.1	3.0	1.8	17.1
York	1981	82.7	1.1	n/a	n/a	n/a	n/a	n/a	16.2
	1986	80.7	1.0	7.5	1.7	1.8	.3	.4	7.1
	1991	73.3	1.1	8.5	1.3	5.1	.5	.4	10.0
Total GTA	1981	73.3	1.5	n/a	n/a	n/a	n/a	n/a	25.2
	1986	74.9	1.4	5.5	1.6	2.7	2.2	1.1	10.5
	1991	70.9	1.4	4.7	1.2	4.4	2.3	1.5	13.5

Source : Adopted from 1981, 1986 and 1991 Census of Canada

n/a = not available



### Shift in Age Profile

Age characteristics of the GTA are indicated on Table 3.5. Overall, the GTA is seeing a decline in the numbers of younger people as the baby-boom generation is no longer having children. There is also an increasing number of people over the age of 65.

Toward the year 2015, the number of people in the GTA younger than 19 is expected to continue to decline in proportion to other age groups. And, as seen on Table 3.6, the median age of the population will be increasing (IBI, 1990c) with a steady increase in the number of elderly. Today the elderly (over 65 years) constitute over 10 percent of the population, and over the next decade the proportion of elderly is expected to increase to 14 percent (Canadian Urban Institute, 1991b). As the population ages, more homes will be composed of single elderly individuals or 'empty-nester' parents whose children live on their own. This may influence the extent of adoption of GTA 3Rs components that require strenuous activities.

TABLE 3.5  
GREATER TORONTO AREA - AGE PROFILE 1981, 1986, 1991

		0-19 Years		20-34 Years		35-54 Years		55-64 Years		65+ Years	
		Number	%	Number	%	Number	%	Number	%	Number	%
Metro	1981	578,015	27.0	596,025	27.9	521,975	24.4	215,270	10.0	226,130	10.6
	1986	520,420	24.0	632,075	28.8	554,430	35.1	236,635	10.8	252,160	11.5
	1991	509,175	22.4	649,399	28.5	598,900	26.3	227,210	10.0	291,095	12.8
Durham	1981	97,635	34.4	75,495	26.6	67,920	24.0	21,405	7.6	21,205	7.5
	1986	102,420	31.4	87,800	27.0	84,285	25.8	26,035	8.0	25,615	7.9
	1991	126,135	30.8	106,550	26.0	113,115	27.7	29,905	7.3	33,350	8.2
Halton	1981	85,605	33.7	62,085	24.4	67,815	26.7	20,735	8.1	17,635	6.9
	1986	81,240	30.0	65,065	24.0	76,690	28.3	25,745	9.5	22,650	8.4
	1991	87,575	28.0	74,380	23.7	92,735	29.6	28,290	9.0	30,164	9.6
Peel	1981	174,490	35.6	139,135	28.6	124,845	25.4	29,550	6.0	22,695	4.6
	1986	189,815	32.0	164,715	27.8	164,235	27.8	40,825	6.9	32,570	5.5
	1991	220,020	30.0	201,451	27.5	212,405	28.9	51,910	7.0	46,570	6.4
York	1981	42,455	32.8	33,490	25.9	28,585	22.1	11,195	8.6	13,715	10.6
	1986	113,935	32.5	87,390	24.9	99,025	28.2	25,940	7.4	24,315	6.9
	1991	158,805	31.5	120,410	23.8	153,355	30.4	36,835	7.3	35,560	7.0
GTA	1981	978,200	29.7	906,230	27.5	811,140	24.6	298,155	9.0	301,380	9.1
	1986	1,007,830	27.0	1,037,045	27.7	978,665	26.2	355,180	9.5	357,310	9.6
	1991	1,101,710	26.0	1,152,190	27.2	1,170,510	27.6	374,150	8.8	436,736	10.3

Source: Statistics Canada: Census Divisions, Census Families in Private Households, 1981; Statistics Canada, Part 1, Profiles, 1986; Statistics Canada, 1991.

To reflect an aging population, it is predicted that, municipal service provision will be targeted to: community health, culture and leisure, recreation involving less demanding sport, and senior citizen support services designed to allow them to remain in their homes (IBI, 1990c, p. 12). As the trend will be toward the integration of services, the integration of waste diversion programs may be influenced similarly.

**TABLE 3.6**  
**GREATER TORONTO AREA - MEDIAN AGE**  
**ACTUAL AND PROJECTED**

	1987		2011	
	Male	Female	Male	Female
Metro	31.5	33.9	41.9	45.6
Durham	29.3	30.2	35.3	37.0
Halton	30.9	32.6	37.4	39.7
Peel	28.6	29.4	36.3	38.2
York	29.7	30.4	34.7	36.3
GTA	n/a	n/a	n/a	n/a
ONTARIO TOTAL	31.4	33.1	39.7	42.7

Source: Demographic Bulletin, Population Projections for Regional Municipalities, Counties and Districts of Ontario to 2011

n/a = not available

### *Shift in Family Profile*

Across the GTA, children and teenagers are expected to increasingly be raised in single-parent family households and family households containing children of different parents (blended families) (Canadian Urban Institute, 1991b). A growing proportion of families will be two income families, thus potentially reducing the time available for waste diversion activities.

To adjust to these changes, services providers in the GTA have moved toward rationalizing and integrating community-based services and facilities through future community hub-centres (e.g., based in school buildings). Any financial and time requirements that might be associated with waste diversion activities must be assessed in light of the time involved per family and other household costs. A shift toward convenience of the waste diversion activities and adaptability to demographic and neighbourhood conditions would likely assist diversion.

### *Shift in Income Profile*

When comparing incomes, York Region continues to have the highest income and Durham Region has the lowest income of all Regions in the GTA as indicated on Table 3.7. Understanding the differences in household income on a regional basis is useful in the design and planning of the 3Rs system. For example, in regions where the average household income is lower and there is less discretionary income, there may be less willingness to pay for a subsidized composter, which would be viewed as a non-essential good. In less wealthy regions, it may be necessary to subsidize programs to a greater extent.

Across the GTA, the further automation of jobs, loss of traditional manufacturing jobs and slow growth in the construction sector may have a negative effect on people deriving their income from blue-collar employment. Many of the new jobs to be created will either be higher income, high skilled service sector jobs or low-paying part-time employment.

On the other side of the spectrum, the Canadian Urban Institute further predicts the feminization of poverty, particularly among single parent households. Poverty will be further intertwined with race and ethnicity. Social services in the GTA are moving in the direction of being cost efficient (IBI, 1990c) to address this trend. To be effective, waste diversion activities must also ensure that efficiencies are achieved and programs are sensitive to the needs of the changing income strata in Metro Toronto and the GTA.

TABLE 3.7  
GREATER TORONTO AREA  
AVERAGE INCOME BY HOUSEHOLD

	1981	1986
Metro	\$27,476	\$40,493
Durham	27,235	38,526
Halton	32,208	48,354
Peel	31,501	46,630
York	33,288	52,206
GTA	\$28,699	\$42,674

Source: Statistics Canada, 1981 Income; Statistics Canada, Profiles,  
Ontario Part 2, 1986

### **3.1.4 Housing**

Information about housing supports the GTA 3Rs analysis by considering whether waste diversion opportunities should focus on 3Rs components appropriate to each type of housing. In addition, information about households helps to determine whether people are owners or tenants, as a factor in such waste diversion options as the direct or indirect levy of collection fees. Across the Greater Toronto Area, several housing characteristics and trends have implications for the GTA 3Rs Analysis.

#### ***Current Household Characteristics***

The GTA had a total of 1,487 million households in 1991. As indicated on Table 3.8, household size across the GTA varies from 3.5 persons per household in Markham to a low of 2.3 persons per household in East York and Toronto. Most of the housing within the Greater Toronto Area is owned by the occupants. However, as indicated in Table 3.9, rates of home ownership vary considerably from a high of 82 percent in York Region to a low of 48 percent in the City of Toronto. The variation in rental and ownership rates has implications to the GTA 3Rs analysis in terms of assumptions about the extent to which waste diversion activities depend on curbside pick-up or the efficacy of components that rely on direct cost diversion efforts.

The type of households also varies across the GTA and within each Region. For example, Table 3.10 indicates that Metro Toronto is dominated by high rise apartments closely followed by single family homes. Metro Toronto also has the highest percent of low rise apartment housing stock in the GTA. In contrast, Durham Region has the most single family housing and least amount of high rise.

#### ***GTA Housing Projections***

Over the planning period for the GTA 3Rs analysis, there is expected to be considerable variation in the rate and type of new housing constructed in the GTA. For example, Table 3.12 indicates that the rate of growth of new housing in Metro Toronto is expected to level off, with much of the newer housing being multiple family, infill development. This type of housing construction is due primarily to the low amount of 'green field' development land in Metro Toronto and Provincial housing initiatives. The Regional Municipalities are expected to experience growth of all housing types. By 2015, the GTA is predicted to have 2,301,432 units, representing a 66 percent increase of the current housing stock.

TABLE 3.8  
HOUSEHOLDS AND HOUSEHOLD SIZE BY REGION

YEAR		1986 Households	Household Size	1991 Households	Household Size
<b>Metro</b>					
Toronto		827,492	2.58	864,555	2.63
	East York	43,589	2.23	44,475	2.3
	Etobicoke	119,900	2.66	115,230	2.7
	North York	198,298	2.78	203,145	2.7
	Scarborough	162,251	2.84	174,915	3.0
	Toronto	257,428	2.30	270,660	2.3
	York	54,026	2.46	56,130	2.5
Durham		106,930	3.05	136,135	3.0
	Ajax	11,790	3.10	18,085	3.1
	Brock	3,450	2.90	3,920	2.8
	Newcastle	10,940	3.12	16,380	3.0
	Oshawa	42,670	2.89	46,945	2.7
	Pickering	14,575	3.36	20,515	3.3
	Scugog	5,005	3.04	5,965	3.0
	Uxbridge	3,875	3.07	4,730	2.9
	Whitby	14,625	3.13	19,580	3.1
Halton		89,830	3.02	106,420	2.90
	Oakville	28,725	3.03	37,910	2.99
	Burlington	40,120	2.91	46,240	2.77
	Milton	9,735	3.29	10,070	3.09
	Halton Hills	-	-	12,200	2.97
Peel		185,870	3.19	229,665	3.17
	Brampton	56,885	3.31	70,785	3.29
	Mississauga	120,025	3.12	148,240	3.10
	Caledon	8,960	3.31	10,745	3.23
York		105,195	3.33	150,485	3.3
	Vaughan	17,757	3.70	29,855	3.7
	Aurora	6,640	3.15	9,375	3.1
	East				
	Gwillimbury	4,330	3.38	5,570	3.2
	Georgina	7,640	2.94	10,455	2.8
	Markham	33,355	3.44	43,655	3.5
	Newmarket	10,685	3.27	14,175	3.1
	Richmond				
	Hill	15,070	3.10	25,550	3.1
	Whitchurch-				
	Stouffville	4,865	3.11	6,050	3.0
	King Twp.	4,935	3.23	5,745	3.1
GTA		1,315,317	2.83	1,487,260	2.85

Source: 1986, 1991 Census Data, Regional Planning Departments

TABLE 3.9  
OWNERSHIP/RENTAL CHARACTERISTICS: 1991

REGION	OWNERS	%	RENTAL	%	TOTAL	% HOUSEHOLD
METRO	415,450	48.05	449,105	51.95	864,555	100
DURHAM	101,780	74.76	34,360	25.24	136,135	100
HALTON	79,045	74.28	27,375	25.72	106,420	100
PEEL	156,950	68.34	72,720	31.66	229,670	100
YORK	124,070	82.45	26,405	17.55	150,485	100
GTA TOTAL	877,295	59.00	609,965	41.00	1,487,265	100

SOURCE: Statistics Canada, Profiles, 1991.

TABLE 3.10  
PERCENTAGE HOUSEHOLD TYPES: GREATER TORONTO AREA - 1991

	Single Family	%	Semi/Town Row	%	Low Rise	%	High Rise	%	Total Region	%
METRO	281,475	33.2	156,440	18.1	110,695	12.8	309,940	35.8	864,555	99.9
DURHAM	94,005	69.0	22,130	16.3	9,255	6.8	10,750	7.9	136,140	100.0
HALTON	69,860	65.6	15,735	14.8	5,155	4.8	15,665	14.7	106,420	99.9
PEEL	113,425	49.4	53,165	23.1	9,510	4.1	53,570	23.3	229,670	99.9
YORK	120,145	79.8	13,800	9.2	5,150	3.4	11,395	7.6	150,490	100.0
GTA TOTAL	678,910	45.7	261,270	17.6	139,765	9.4	401,320	27.0	1,487,275	99.7

Note: Statistics Canada - Cat. No 95-337, 1991 Census - 100% Data



TABLE 3.11  
HOUSEHOLD PROJECTIONS BY REGION

YEAR	M e t r o Toronto	Durham	Halton	Peel	York	GTA
1991	858,550	136,140	106,420	229,670	150,490	1,487,265
1992	871,880	147,105	109,301	240,228	161,556	1,530,070
1993	879,267	153,120	112,261	250,582	169,129	1,564,359
1994	886,717	159,155	115,301	261,383	177,057	1,599,613
1995	894,229	165,210	118,424	272,649	185,357	1,635,869
1996	901,806	171,290	121,630	284,400	194,046	1,673,172
1997	909,447	177,390	124,924	293,392	199,985	1,705,138
1998	917,152	183,520	128,307	302,669	206,107	1,737,755
1999	924,923	189,670	131,782	312,238	212,416	1,771,029
2000	932,760	195,845	135,350	322,111	218,918	1,804,984
2001	940,663	202,040	139,016	332,295	225,619	1,839,634
2002	946,916	208,265	142,914	340,788	231,400	1,870,283
2003	953,212	214,725	146,921	349,497	237,329	1,901,684
2004	959,549	221,210	151,041	358,430	243,410	1,933,640
2005	965,929	227,720	155,277	367,590	249,646	1,966,162
2006	972,351	234,255	159,631	376,985	256,043	1,999,265
2007	978,815	240,825	164,107	384,928	261,961	2,030,636
2008	985,323	247,420	168,709	393,039	268,016	2,062,507
2009	991,874	254,045	173,440	401,320	274,212	2,094,891
2010	998,468	260,905	178,304	409,776	280,550	2,128,003
2011	1,005,000	267,795	183,304	418,410	287,036	2,161,545
2012	1,011,788	274,710	188,444	427,226	293,671	2,195,839
2013	1,018,515	281,620	193,728	436,228	300,459	2,230,550
2014	1,025,287	288,485	199,161	445,419	307,404	2,265,756
2015	1,032,103	295,270	204,745	454,804	314,510	2,301,432

Source: Clayton Research Associates Ltd. 1989b; Hardy Stevenson and Associates

TABLE 3.12  
HOUSEHOLD PROJECTIONS BY TYPE

District	Housing Type	1986	1991	1996	2001	2006	2011	2015
M e t r o Toronto		827,492	864,555	901,806	940,663	972,351	1,005,106	1,032,103
	Single Det.	258,403	287,475	-	-	-	295,474	-
	Semi/Row/Town	194,774	156,440	-	290,801	-	307,712	-
	Low Rise	86,579	110,695	-	-	-	-	-
	High Rise	287,736	309,940	-	354,388	-	401,920	-
Durham		106,655	136,140	171,290	202,040	234,255	267,795	295,270
	Single Det.	71,070	94,005	118,408	139,717	160,987	182,093	199,026
	Semi/Row/Town	26,330	22,130	37,708	44,033	50,950	58,122	63,846
	Low Rise	-	9,255	-	-	-	-	-
	High Rise	9,255	10,750	15,174	18,290	22,318	27,580	32,398
Halton		89,825	106,420	121,630	139,016	159,631	183,304	204,745
	Single Det.	58,825	69,860	-	91,290	-	119,294	-
	Semi/Row/Town	17,275	15,735	-	27,908	-	38,700	-
	Low Rise	-	5,155	-	-	-	-	-
	High Rise	13,725	15,665	-	19,818	-	25,310	-
Peel		186,715	229,670	284,400	332,295	376,985	418,410	454,804
	Single Det.	86,910	113,425	-	155,608	-	183,612	-
	Semi/Row/Town	56,885	53,165	-	83,994	-	100,202	-
	Low Rise	-	9,310	-	-	-	-	-
	High Rise	42,920	53,570	-	69,713	-	89,824	-
York		105,195	150,490	194,046	225,619	256,043	287,036	314,510
	Single Det.	84,740	120,145	144,096	166,283	188,232	210,366	229,596
	Semi/Row/Town	10,615	13,800	19,193	21,952	24,397	26,674	28,805
	Low Rise	4,340	5,150	-	-	-	-	-
	High Rise	5,500	11,395	30,757	37,384	43,414	49,996	57,273
GTA		1,315,882	1,487,270	1,615,306	1,816,654	1,962,239	2,116,879	2,301,432
	Single	559,948	678,910	-	848,372	-	990,839	-
	Semi/Row/Town	305,879	261,270	-	468,688	-	531,410	-
	Low Rise	90,919	139,765	-	-	-	-	-
	High Rise	359,136	401,320	-	499,593	-	594,630	-

Source: Selected Characteristics for Census Divisions and Census Subdivisions, 1986 Census - 100% Data

Several additional current and future trends include:

- Toronto CMA is no longer the tightest rental housing market in Canada;
- there is very little ongoing private rental construction but the assisted rental construction component of the market has increased dramatically;
- singles, semis and freehold townhouses dominate housing starts in Toronto CMA;
- housing demand in the Toronto area is expected to be weak over the next few years due to lower household formation rates. In the late 1990s home ownership is expected to increase (CMHC, 1993a);
- over the longer term, the rate of household growth in the Greater Toronto Area is expected to decline due to lower levels of net migration and the aging of the population out of the prime household formation stage;
- due to preferences for an aging population to desire high-rise and multiple family dwellings, these housing forms are expected to increase in the 1990s; and,
- shortages of developable land are expected to result in net zero growth of single-detached dwellings in Metro by the year 2000. Over the long term, non-Metro regions are also expected to have declines in household growth.

### **3.1.5 Employment**

In 1991, the GTA provided approximately 2,419,455 employment opportunities. About 60 percent of the jobs in the GTA were located in Metro Toronto. Peel Region provided the next largest number of jobs at 16.3 percent. Halton Region provided the fewest employment opportunities, at 6.2 percent. Based on Hemson estimates, Peel and York Region are anticipated to experience major gains in employment, with Peel accommodating 24 percent of the employment increase in the GTA and York accommodating 25 percent of the employment growth to 2011. Durham and Halton Regions will experience a 13 percent and 11 percent change, respectively. All employment estimates must be viewed with some caution, given job losses during the recession.

Figure 3.2 indicates that the overall trends in the GTA are for increases in service and office type employment. Since 1981, manufacturing and commercial services have experienced the most significant decreases in employment opportunities. Similarly,

labour force declines across the GTA have been greatest in the manufacturing sector.

Table 3.17 shows that employment in the GTA continues to be dominated by manufacturing at 21.5 percent of the employment opportunities. However, both the office sectors and service sectors provide considerable employment opportunities in the GTA. Within these sectors, Durham Region has the highest dependence on manufacturing; Halton Region has the highest percentage dependence on finance, insurance and real estate.

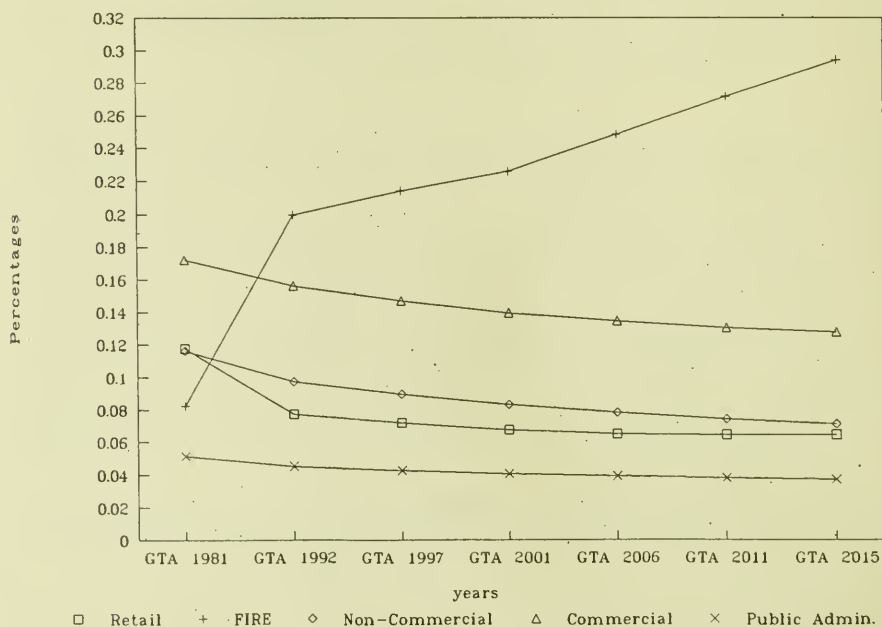
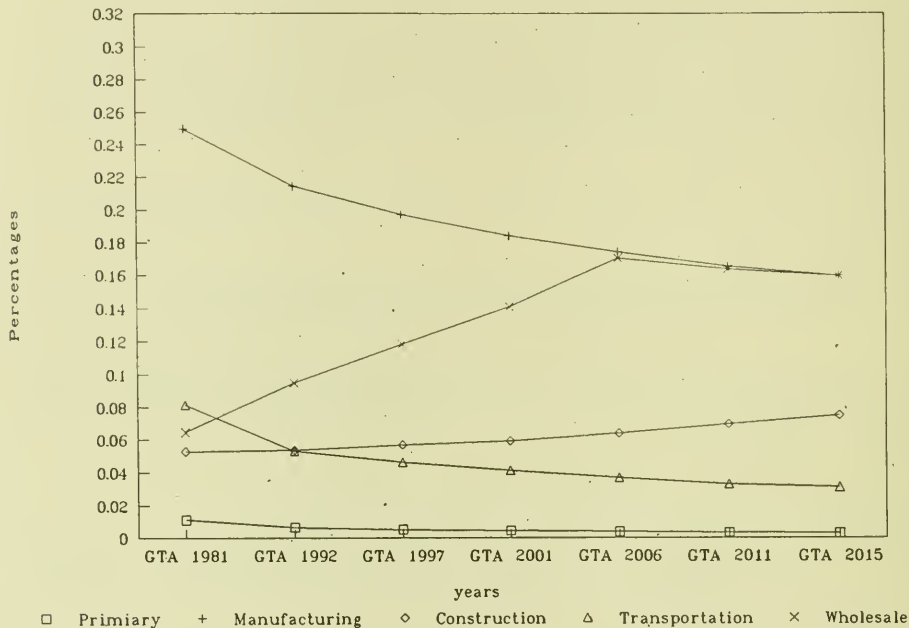
Several trends are apparent with respect to future employment growth (Hemson Consulting Ltd., 1989):

- increasing female workforce participation rates will occur in the 35 - 65 age groups and will play a major role in the future growth of employment;
- Metro Toronto's share of employment growth will be low and decreasing, and over the long term, will account for 50 percent of the employment opportunities;
- all Metro Toronto growth will occur in the office sector;
- the Regions (vs. Metro) will continue to attract a growing share of future GTA employment and Peel and York Regions will accommodate half of the future growth; and
- Halton and Durham Regions will gradually increase employment levels with more growth occurring over the longer term. A small proportion of the growth is expected from office employment.

A second analysis of future employment levels and distribution was completed by the IBI Group in their *Greater Toronto Area, Urban Structure Concepts Study* (IBI, 1990a, pp. 10-11). They assumed a number of societal trends affecting employment, including:

- continuing rapid entry of women into the out-of-home labour force, but at reduced rates relative to the last two decades;
- continuing rates of household formation until the turn of the century as the remainder of the baby boom generation enters the real estate market;
- an increasing number of retired persons living in the community, particularly following 2011 as the baby boom generation starts to reach retirement age; and,
- an increase in the overall participation rate between 1986 and 2011, followed by a decline to an intermediate level by 2021.

Figure 3.2  
Employment Trends by SIC for Greater Toronto Area, 1981-2015



As part of the City of Toronto Official Plan Review, Analytic Information Management Inc. (AIMI) assessed the GTCC employment estimates (City of Toronto Economic Development Committee, 1990). This study, conducted jointly with the University of Toronto using the PRISM model, assessed potential employment changes in the GTA using the Census Metropolitan Area (encompassing Metropolitan Toronto, Peel and York Regions, all of Halton Region except Burlington and a small part of Durham Region, not including Oshawa and Whitby) as a base. In contrast to the Hemson projections, AIMI notes several employment trends relevant to this study:

- labour force participation rates will level off; and,
- an aging workforce will increase the demand for consumer services (especially in the leisure market area) relative to spending on housing and "necessary" consumer durables.

As part of the context for the Metro Toronto Strategic Plan and the development of policies for the new Metro Toronto Official Plan, the Metro Toronto Planning Department completed an analysis of the magnitude and distribution of future population and employment activities within Metro Toronto and the GTA. The analysis identified several employment trends relevant to the 3Rs analysis:

- the distribution of jobs by activity have shifted such that goods producing activities have experienced a decline while service activities have increased;
- it is assumed that Metro Toronto's long term employment will shift from industrial (manufacturing and wholesale) activities to offices; and,
- shares of employment in other sectors are expected to remain relatively stable. The Canada Mortgage and Housing Corporation (CMHC) has estimated that employment in the Toronto CMA has declined by 10 percent (200,000 jobs).

More recently, employment in the GTA has declined significantly, with manufacturing and construction experiencing considerable decline (CMHC, 1993a). Service industries have remained stable during the recession, although there are potential job losses as a result of restructuring in the financial services, transportation, utilities and public administration sectors.

The GTA will also be influenced by the further automation of jobs and loss of traditional manufacturing jobs. A significant trend will be the continued emergence of a bi-polar service sector of: 1) highly rewarded educated management and professional service sector; 2) disproportionate numbers of workers in lower paying jobs, poor backgrounds and under-educated workforce.



Overall, future employment trends in the GTA are toward greater increases in the finance, insurance and real estate, construction and wholesale sectors. Continued decreases are expected to occur in the manufacturing sector, as indicated on Table 3.20. Tables 3.13, 3.14, 3.15, 3.16, and 3.17 show additional employment and labour force statistics for Metropolitan Toronto and the GTA Regional Municipalities.

## **3.2 Durham Region**

### **3.2.1 Demographic Characteristics**

In 1991, Durham had about 10 percent of the population in the GTA with 409,070 residents. As seen on Table 3.1, the most populated centre in Durham Region is Oshawa followed by Pickering and Whitby.

As most of the land in Metro Toronto is developed, Durham Region is expected to experience higher growth rates than Metro Toronto, but less than York and Peel Regions. Table 3.2 indicates that Durham is expected to receive 21 percent of the growth of the GTA between 1991 and 2011 and 20 percent of the growth of the GTA in the 2011 to 2031 period. York and Peel Regions will continue to be the fastest growing municipalities over that period.

By 2015, Durham Region is expected to have 781,000 residents, roughly the size of Peel Region today. The population projections selected for Durham Region and other Regions within the GTA are presented in Table 3.3, Population Projections by Region.

Durham Region is linguistically the most homogenous region in the GTA with almost 90 percent of the population indicating English as their mother tongue.

As seen on Table 3.5, Durham has a younger population and consequently, higher fertility rate. The remainder of the age groups in the Region are about average for the Greater Toronto Area. Over the planning period, most of the growth in Durham Region will be driven by immigration (as opposed to birth rate, rate of family formations etc). Table 3.7 indicates that the median age for Durham residents will also be similar to the average median age for the GTA.

Durham Region has the lowest average household income of all Regions in the GTA. Given this, residential waste diversion scenarios involving additional household costs may be less effective.

TABLE 3.13  
EMPLOYMENT BY SIC: GREATER TORONTO AREA 1981<sup>1</sup>

Major ICI Group	Metro Empl.	%	Durham Empl.	%	Halton Empl.	%	Peel Empl.	%	York Empl.	%	GTA Total Empl.	%
Primary Manufacturing	5,915	.5	4,085	3.7	3,105	3.1	2,890	1.2	4,395	4.0	20,390	1.1
Construction	291,315	22.7	38,585	35.0	29,240	28.7	71,470	30.5	28,135	25.7	458,745	25.0
Trans/Comm	61,270	4.8	6,040	5.5	5,960	5.9	13,025	5.6	10,615	9.7	96,910	5.3
Utilities	101,645	7.9	8,350	7.6	4,245	4.2	27,490	11.7	7,685	7.0	149,415	8.1
Wholesale	75,545	5.9	3,485	3.2	5,680	5.6	24,560	10.5	9,435	8.6	118,705	6.5
Retail	149,115	11.6	13,310	12.1	14,965	14.7	25,065	10.7	13,845	12.6	216,300	11.8
FIRE	129,300	10.1	4,120	3.7	5,110	5.0	8,870	3.8	4,255	3.9	151,655	8.3
Non-Commercial Services	155,060	12.1	14,920	13.5	12,710	12.5	19,145	8.2	11,650	10.6	213,485	11.6
Commercial Services	238,130	18.6	13,100	11.9	16,200	16.0	33,165	14.1	16,315	14.9	316,910	17.3
Public Administration	73,900	5.7	4,195	3.8	4,515	4.4	8,775	3.7	3,350	3.1	94,735	5.2
TOTAL	1,281,195	99.9	110,190	100.0	101,730	100.1	234,455	100.0	109,680	100.1	1,837,250	100.2

Source: Census Canada, Total and Employed Labour Force by Selected Major Groups for Census Divisions (Place of Work), 1981. Primary employment includes: Agricultural and Related Service Industries; Fishing and Trapping Industries; Logging and Forestry Industries, Mining (including Milling), Quarrying and Oil Well Industries, Transportation, Communications and Utilities includes: Transportation and Storage Industries; Communication and other Utility Industries. FIRE includes: Finance and Insurance Industries; Real Estate Operator and Insurance Industries. Non-Commercial Services includes: Business Service Industries; Educational Service Industries; Health and Social Service Industries. Commercial Services includes: Accommodation, Food and Beverage Service Industries; Other Service Industries.

TABLE 3.14  
EMPLOYMENT AND NUMBER OF ESTABLISHMENTS BY SIC:  
GREATER TORONTO AREA 1992

Major ICI Group	Metro Empl.	Est.	Durham Empl.	Est.	Halton Empl.	Est.	Peel Empl.	Est.	York Empl.	Est.	GTA Empl.	Est.
Primary	7,541	521	1,806	134	1,651	137	2,801	142	2,155	252	15,954	1,186
Manufacturing	231,632	6,658	51,000	659	36,224	990	140,104	3,002	69,166	2,334	528,126	13,643
Construction	58,974	5,384	11,546	861	6,774	857	23,685	1,866	31,342	2,602	132,321	11,570
Trans/Comm												
Utilities	72,555	1,347	12,343	299	4,713	264	28,663	444	11,912	400	130,186	2,754
Wholesale	102,512	7,241	14,497	702	11,400	1,092	64,047	3,289	41,511	2,689	233,967	15,013
Retail	99,709	11,254	22,434	1,417	12,015	1,487	33,903	2,426	22,885	2,529	190,946	19,113
FIRE	396,802	6,941	4,626	362	45,937	521	30,087	1,048	14,793	1,007	492,245	9,879
Non-Commercial												
Services	166,541	1,113	14,387	98	7,706	116	24,820	143	27,120	143	240,574	1,613
Commercial Services	253,888	14,990	27,105	1,166	17,134	1,430	51,300	3,117	36,021	2,654	385,448	23,357
Public Administration	74,351	134	16,859	18	10,670	25	5,284	17	4,748	15	111,912	209
TOTAL	1,464,505	55,583	176,603	5,716	154,224	6,919	404,694	15,494	261,653	14,625	2,461,679	98,337
Increases	14%		60.2%		51.5%		72%		138%			

Source: Dun and Bradstreet, 1993

Note : This is preliminary data and may be readjusted if new data becomes available

TABLE 3.15  
EMPLOYMENT PROJECTIONS BY REGION

YEAR	M e t r o Toronto	Durham	Halton	Peel	York	G T A Total
1986	1,349,000	137,264	119,000	304,000	170,000	2,079,264
1987	1,368,998	143,507	124,639	320,182	183,778	2,141,104
1988	1,389,293	150,035	130,546	337,227	198,673	2,205,774
1989	1,409,888	156,860	136,733	355,178	241,775	2,300,434
1990	1,430,789	163,995	143,213	374,086	232,182	2,344,265
1991	1,452,000	171,455	150,000	394,000	252,000	2,419,455
1992	1,464,504	176,609	154,223	404,695	261,654	2,461,685
1993	1,477,116	181,919	158,565	415,679	271,678	2,504,957
1994	1,489,836	187,388	163,029	426,962	282,085	2,549,300
1995	1,502,666	193,021	167,618	438,552	292,892	2,594,749
1996	1,515,607	198,824	172,337	450,455	304,112	2,641,335
1997	1,528,659	204,802	177,189	462,682	315,762	2,689,094
1998	1,541,823	210,959	182,177	475,241	327,859	2,729,059
1999	1,555,101	217,301	187,306	488,141	340,419	2,788,268
2000	1,568,493	223,834	192,579	510,391	353,460	2,848,757
2001	1,582,000	230,564	198,000	515,000	367,000	2,892,564
2002	1,592,104	235,117	202,180	522,314	375,906	2,927,621
2003	1,602,273	239,761	206,448	529,733	385,027	2,963,242
2004	1,612,507	244,496	210,806	537,256	394,370	2,999,435
2005	1,622,807	249,325	215,256	544,887	403,940	3,036,215
2006	1,633,172	254,249	219,800	552,626	413,742	3,073,589
2007	1,643,603	259,270	224,440	560,474	421,560	3,109,347
2008	1,654,102	264,391	229,178	568,435	429,525	3,145,631
2009	1,664,667	269,613	234,016	576,508	437,641	3,182,445
2010	1,675,299	274,938	238,956	584,696	445,910	3,219,799
2011	1,686,000	280,368	244,000	593,000	454,335	3,257,703
2012	1,696,769	283,142	249,151	601,422	459,360	3,289,844
2013	1,707,606	285,944	254,411	609,964	464,440	3,322,365
2014	1,718,513	288,773	259,781	618,627	469,576	3,355,270
2015	1,729,490	291,631	265,265	627,414	474,769	3,388,569

Source: Hemson, 1989; Hardy Stevenson and Associates

TABLE 3.16  
SUMMARY PERCENTAGE OF EMPLOYMENT BY SIC: GREATER TORONTO AREA 1981 - 1992

Major ICI Group	Metro		Durham		Halton		Peel		York	
	% 1981	% 1992	% 1981	% 1992	% 1981	% 1992	% 1981	% 1992	% 1981	% 1992
Primary	.5	.5	3.7	1.0	3.1	1.1	1.2	.7	4.0	.8
Manufacturing	22.7	15.8	35.0	28.9	28.7	23.5	30.5	34.6	25.6	26.4
Construction	4.8	4.0	5.5	6.5	5.9	4.4	5.6	5.8	9.7	12.0
Trans/Comm										
Utilities	7.9	4.9	7.6	7.0	4.2	3.0	11.7	7.1	7.0	4.5
Wholesale	5.9	6.9	3.2	8.2	5.6	7.4	10.5	15.8	8.6	15.8
Retail	11.6	6.8	12.1	12.7	14.7	7.8	10.7	8.4	12.6	8.7
FIRE	10.1	27.1	3.7	2.6	5.0	29.8	3.8	7.4	3.9	5.6
Non-Commercial										
Services	12.1	11.3	13.5	8.1	12.5	5.0	8.2	6.1	10.6	10.4
Commercial Services	18.6	17.3	11.9	15.3	16.0	11.1	14.1	12.7	14.9	13.8
Public Administration	5.8	5.0	3.8	9.5	4.4	6.9	3.7	1.3	3.1	1.8
TOTAL	100.0	99.6	100.0	99.8	100.1	100.0	100.0	99.9	100.0	99.8

Source: Statistics Canada, 1981 Census; Compusearch, Dun & Bradstreet Data: 1993

TABLE 3.17  
EMPLOYMENT TRENDS BY SIC: GREATER TORONTO AREA 1992 - 2015

Major ICI Group	1992	1997	2001	2006	2011	2015
Primary	0.6	0.5	0.5	0.4	0.3	0.3
Manufacturing	21.5	19.7	18.4	17.4	16.5	15.9
Construction	5.4	5.7	5.9	6.4	7.0	7.5
Trans/Comm						
Utilities	5.3	4.6	4.1	3.7	3.3	3.1
Wholesale	9.5	11.8	14.1	17.0	16.4	15.9
Retail	7.8	7.2	6.8	6.5	6.4	6.4
FIRE	20.0	21.4	22.6	24.8	27.2	29.4
Non-Commercial						
Services	9.8	8.9	8.3	7.8	7.4	7.1
Commercial Services	15.7	14.7	13.9	13.4	13.0	12.8
Public Administration	4.5	4.3	4.0	3.9	3.8	3.7
TOTAL	100.0	98.8	98.6	101.3	101.3	102.1

Source: Statistics Canada, 1981 Census; Compusearch, Dun & Bradstreet Data, 1993

TABLE 3.18  
LABOUR FORCE BY PLACE OF RESIDENCE: GREATER TORONTO AREA 1981

Classification & Division	Metro Empl.	%	Halton Empl.	%	Durham Empl.	%	Peel Empl.	%	York Empl.	%	GTA Total Empl.	%
Primary A,B,C,D	6,150	0.5	3,205	2.4	4,630	3.2	3,175	1.2	4,305	3.3	21,465	1.1
Manufacturing E	276,245	23.0	37,515	27.6	44,540	31.3	79,090	29.3	27,330	20.6	464,720	24.7
Construction F	64,050	5.3	6,445	4.7	7,700	5.4	13,625	5.0	10,465	7.9	102,285	5.4
Transportation												
Communications												
Utilities G,H	93,540	7.8	8,780	6.5	11,360	8.0	25,540	9.4	9,540	7.2	148,670	7.9
Wholesale												
Retail I,J	211,350	17.6	26,010	19.1	23,205	16.3	55,080	20.4	25,770	19.4	341,515	18.2
Finance,												
Insurance												
Real Estate K,L	108,685	9.1	9,125	6.7	8,505	6.0	17,995	6.6	9,405	7.1	153,715	8.2
Government												
Services N	63,075	5.3	6,730	5.0	7,250	5.1	12,290	4.5	7,415	5.6	96,760	5.2
Other Services												
M,O,P,Q,R	376,250	31.3	38,145	28.0	35,220	24.7	63,515	23.5	38,205	28.8	551,335	29.3
Total	1,199,345	99.9	135,965	100.0	142,510	100.0	270,305	99.9	132,440	99.9	1,800,465	100.0

Source: Statistics Canada, 1981, Cat. 95-942



TABLE 3.19  
LABOUR FORCE BY PLACE OF RESIDENCE: GREATER TORONTO AREA 1986

Classification & Division	Metro Empl.	%	Hallam Empl.	%	Durham Empl.	%	Peel Empl.	%	York Empl.	%	GTA Total Empl.	%
Primary A,B,C,D	8,430	0.6	3,380	2.2	4,580	2.6	3,315	0.1	4,110	2.1	23,815	1.1
Manufacturing E	271,035	21.5	39,530	25.8	48,850	27.9	87,100	26.1	37,850	19.5	484,365	22.9
Construction F	68,010	5.3	7,135	4.7	9,865	5.6	17,030	5.1	15,325	7.9	117,365	5.5
Transportation Communications	87,555	6.9	10,080	6.6	15,775	9.0	31,700	9.5	12,585	6.5	157,695	7.4
Utilities G,H												
Wholesale	218,465	17.3	28,675	18.7	29,130	16.7	70,375	21.1	39,285	20.3	385,930	18.2
Retail I,J												
Finance,	116,630	9.2	11,555	7.5	10,735	6.1	22,520	6.8	15,485	8.0	176,925	8.4
Insurance												
Real Estate K,L												
Government	62,110	4.9	7,365	4.8	9,420	5.4	14,860	4.5	9,285	4.8	103,040	4.9
Services N												
Other Services	431,760	34.2	45,475	29.7	46,555	26.6	86,760	26.0	59,835	30.1	670,385	31.6
M,O,P,Q,R												
Total	1,263,995	99.9	153,195	99.7	174,910	99.9	333,660	99.0	193,760	99.2	2,119,520	100

Source: Statistics Canada, 1986, Cat. 94-112

**TABLE 3.20**  
**PERCENTAGE LABOUR FORCE BY PLACE OF RESIDENCE:**  
**GREATER TORONTO AREA 1981,1986**

Major ICI Group	Metro		Halton		Durham		Peel		York		GTA	
	% 1981	% 1986	% 1981	% 1986	% 1981	% 1986	% 1981	% 1986	% 1981	% 1986	% 1981	% 1986
Primary	.5	.6	2.4	2.2	3.2	2.6	1.2	.1	3.3	2.1	1.1	1.1
Manufacturing	23.0	21.5	27.6	25.8	31.3	27.9	29.3	26.1	20.6	19.5	24.7	22.9
Construction	5.3	5.3	4.7	4.6	5.4	5.6	5.0	5.1	7.9	7.9	5.4	5.5
Trans/Comm Utilities	7.8	6.9	6.5	6.5	8.0	9.0	9.4	9.5	7.2	6.5	7.9	7.4
Wholesale												
Retail	17.6	17.3	19.1	18.7	16.3	16.6	20.4	21.1	19.4	20.3	18.2	18.2
FIRE	9.1	9.2	6.7	7.5	6.0	6.1	6.6	6.7	7.1	8.0	8.2	8.4
Non-Commercial Services												
Commercial Services	31.3	34.2	28.0	29.6	24.7	26.6	23.5	26.0	28.8	30.1	5.2	4.9
Public Administration	5.3	4.9	5.0	4.8	5.1	5.3	4.5	4.4	5.6	4.8	29.3	31.6
TOTAL	99.9	99.9	100.0	99.8	100.0	100.0	99.9	99.0	99.9	99.2	100.0	100.0

Source: Statistics Canada, 1981 Census; 1986 Census

### 3.2.2 Housing

In 1991, Durham had 136,135 households, as indicated on Table 3.8. Consistent with population data, the majority of households are located in Oshawa followed by Pickering, Whitby and Ajax. Table 3.9 indicates that about 25 percent of the housing units in Durham are rental units. This number of rental units is significantly less than Metro Toronto but more than York Region (17 percent), the Regional Municipality with the least housing units. CMHC reports that Durham municipalities are currently experiencing the highest rental vacancy rates in the GTA and the highest vacancies since they began surveying.

By 2015, as indicated on Table 3.11, Durham is expected to have 295,000 households, more than a doubling from 1991. As a municipality within the GTA, average household sizes are expected to decline to 2.48 persons per household in 2031.

Single family housing dominates Durham Region's housing mix at 69 percent of the housing in the Region. Due to preferences of an aging population for high-rise and multiple family dwellings, these housing forms are expected to increase in the 1990s. Based on Clayton Research household projections, Durham Region is expected to have a considerable increase in single family housing units over the planning period. Most of the multiple family units in Durham are semis, rows and townhouses (52.5 percent), 21.9 percent are high rises; 25.5 percent are low rises. Table 3.10 shows that as a proportion of all housing units, 7.9 percent are high rises and 6.8 percent low rises.

### 3.2.3 Employment

Tables 3.13 and 3.14 indicate that, on a percentage basis, Durham Region has had considerably greater employment growth than Metro Toronto, although jobs have not been created at the same rate as in York and Peel Regions. In 1986, Durham Region had a labour force of 175,000 people. As with the other Regions, Durham is expected to experience increasing participation of females in the 35 to 65 age bracket:

As indicated on Table 3.15, Durham Region is expected to have 291,631 jobs by 2015. And overall, Durham will continue to attract employment growth in GTA but not as rapidly as Peel and York Regions. The majority of Durham Region's labour force is employed in manufacturing and other service sectors. In contrast, Metro Toronto's labour force has fewer people in manufacturing and more people in the service sector and finance, insurance and real estate.

Since 1981, Durham's employment base has shifted with a dominant change being a decline in the Primary and Manufacturing ICI sectors. As seen on Table 3.16, Durham has seen an increase in the Wholesale and Commercial Services Sectors. These trends are expected to continue, reflecting broad employment shifts across the GTA.

Compared to local employment characteristics, the Durham labour force is characterized

by more people involved in transportation, communications and utilities and the office sector, as seen on Table 3.19.

### **3.3 Metro Toronto**

#### **3.3.1 Demographic Characteristics**

With a 1992 population of 2.27 million people, Metro Toronto is the largest jurisdiction within the GTA. Population levels indicated on Table 3.1 represent 53.7 percent of the population of the GTA. In terms of growth trends, there will be considerably less and slower growth in Metro Toronto compared to the GTA Regions. Table 3.2 indicates that Metro Toronto is expected to absorb only 8 percent of the growth in the GTA due to declining birth rates and little greenfield lands left for development. However, Metro Toronto's growth rate is expected to rise after 2011 due to redevelopment.

Table 3.3 indicates that Metro Toronto is targeted for long term growth of 2.5 million people with most of the growth driven by immigration. As reflected by 1991 Census data on mother tongue, for example, Metro Toronto has the most diverse language make-up followed by Peel and York Regions. Table 3.5 indicates that the dominant language in Metro Toronto is English at 64.2 percent of the population. With 17.1 percent of the residents speaking other languages, Metro Toronto has the most diverse language make-up of all Regions in the GTA, higher than the GTA average of 13.5 percent. The fastest growing Metro Toronto language group is Chinese, with both English and Italian experiencing declines.

Other language and cultural trends in Metro Toronto include: immigration dominated by people who do not have a functional command of English and people from Asia, the Caribbean, Latin America, Poland and Portugal.

Metro Toronto's population is aging, reflecting general aging trend across the GTA. As shown on Table 3.6, Metro Toronto had a median age of 31.5 for males (1986 Ontario average was 31.4) and 33.9 for females (1986 Ontario average was 33.1). Thus, Metro Toronto reflected the median age for Ontario. The median age of Metro Toronto, however, is expected to rise to 41.9 for males (2011 Ontario average will be 39.7) and 45.6 for females (2011 Ontario average will be 42.7) percent to the year 2011. Thus, Metro Toronto is expected to have an increasingly older population than the Ontario average.

As seen on Table 3.5, within the GTA Metro Toronto has the fewest people under the age of 19 (22.4 percent) and the highest number of people over 65 years of age at 12.8 percent. Overall, there will be a rise in the percentage of retired persons as baby boomers retire over the planning period. Family characteristics in Metro Toronto are similar to those of the GTA and include a reduction in the number of children per family; increased divorce rate; and, people marrying at a later age.

From 1981 to 1986, Table 3.7 indicates that Metro Toronto continued to be the second lowest income Region with an average household income of \$40,493. Residents of Halton, Peel and York Regions all have higher incomes (average) than Metro residents. Other income trends include:

- continued slide of disposable income;
- double income families as norm;
- continued income stress;
- shift toward time and convenience;
- feminization of poverty, along race and ethnic grounds.

To address changing demographic characteristics in Metro Toronto, local municipalities have begun to shift municipal service provision to community health, leisure, recreation and senior support services. This trend toward integration of municipal service may also be effective in the implementation of GTA 3Rs waste diversion activities.

### 3.3.2 Housing

Table 3.8 indicates that in 1992 Metro Toronto had 864,555 households representing 58 percent of the GTA households. It is expected that there will be continuing rates of household formation due to baby boomers entering the housing market. By 2015, Metro is expected to 1,032,103 housing units, as seen on Table 3.11. However, many of the units will be over 65 to 70 years old and will be undergoing renovation.

In 1991, Metro Toronto had 449,105 rental housing units, representing 74 percent of all of the rental housing units in the Greater Toronto Area. As seen on Table 3.10, Metro Toronto also had more rental housing units than freehold units, representing the highest percent of units in the GTA.

Table 3.10 indicated that Metro Toronto's housing make-up is heavily represented by high rise 35 percent and multiple family units 48.6 percent. Metro Toronto has the highest number, but lowest percentage of single family dwellings at 33.2 percent. There is no major difference in household size within Metro Toronto, about 2.6 persons per households (see Table 3.8). However, Metro Toronto has more single family and 2 person households than the Regions, likely reflecting the median age of residents. Over the GTA 3Rs planning period, it is expected that there will be an increased desire for medium density and high rise housing due to an aging population desiring less property responsibility.

Over the planning period, it is anticipated that Metro Toronto will also experience an increase in households due to infilling and redevelopment. However, Metro Toronto will capture fewer of the housing units compared to other GTA regions.



### **3.3.3 Employment**

In 1992, Metro Toronto provided 1.23 million job opportunities, representing 60 percent of the job opportunities in the GTA and a growth of 14 percent since 1981. Tables 3.13 and 3.14 indicate that Metro Toronto employs the most workers in the GTA and is expected to do so to the year 2015. At that time, Metro Toronto is expected to be able to provide 1,729,490 employment opportunities, as indicated on Table 3.15.

In terms of type of employment, Metro Toronto is the highest employer in the finance, insurance and real estate sectors (FIRE), at 27.1 percent of employment. The next dominant source of employment is the service sector. With commercial and non-commercial services combined, the service industry is the major employer in Metro at 28 percent, followed by FIRE. Compared to the rest of the GTA, Metro Toronto's employment percentage was less in manufacturing and greater in the finance, insurance and real estate sector.

Only two areas have experienced employment growth since 1981, wholesaling and finance, insurance and real estate. The manufacturing, transportation and retail industries have experienced significant declines.

In 1986, Metro Toronto's labour force was 1.26 million (see Table 3.19). It is estimated that 224,000 jobs were lost in the recession. In contrast to the employment opportunities, Table 3.20 indicates that the service sector continues to employ most Metro Toronto residents (34.2 percent), representing an increase from 1981 to 1986. However, a significantly higher percentage of the labour force is employed in manufacturing than in other employment areas.

In the future, its expected that there will be pressure to shift Metro's jobs to 2 categories: low pay, low skill, part-time; and high pay, high skill, full time.

Other trends include, that Metro Toronto will increasingly loosing it's attractiveness as a place to look for work compared to the Regions. Growth will be low and account for only 50 percent of the GTA employment opportunities. Most Metro growth will occur in the Office Sector. The highest labour force growth will be female, 35-65 age bracket. In addition, the overall participation rate will increase but gradually level off.

## **3.4 York Region**

### **3.4.1 Demographic Characteristics**

Table 3.1 indicates that York Region is the third largest Regional Municipality in the GTA behind Metro Toronto and Peel Region. At 504,981 residents York Region has 11.9 percent of the population of the GTA. Markham and Vaughan are the largest municipalities in the Region. In 1988, 80 percent of York Region's residents lived in



urban centres, 11.5 percent lived in rural centres and 8.5 percent lived in rural areas.

In the 1981 to 1986 period, York Region was the second fastest growing municipality, behind Peel. Within the GTA, York Region and the other Regional Municipalities are expected to absorb significantly greater growth than Metro Toronto over the GTA 3Rs planning period. Both Peel and York Regions are expected to grow fastest. By 2011, as seen on Table 3.2, Durham, York and Peel Regions are anticipated to capture approximately 77 percent of the growth in the GTA. York is expected to be the fastest growing of all Regions. By the end of the GTA 3Rs planning period, York is expected to have 889,726 residents.

In terms of cultural diversity, York Region is similar to Peel Region and the average of language groups in the GTA, as seen on Table 3.4. For example, about 73.3 percent of York Region residents have English as their mother tongue compared to 71 percent of the GTA. York Region has the higher percentage of Italian speaking residents and a higher percentage of Chinese speaking residents. Both of these groups have grown proportionally to other groups over the last five years.

York Region has the highest percent of young people in the 0 - 15 years age category and the highest percent of people in the 35-54 age category. Table 3.5 indicates that, compared to Metro Toronto, at 12.8 percent, York Region has relatively fewer people over the age of 65 (7.0 percent). In 1987, Table 3.6 indicates that York Region had a Median Age of 29.7 for males (1986 Ontario average was 31.4) and 30.4 for females (1986 Ontario average was 33.1). This is expected to rise to 34.7 (2011 Ontario average will be 42.7) and 36.3 (2011 Ontario average will be 39.7) percent to the year 2011. Overall, the Region will continue to have a younger population than the rest of the GTA over the long term.

Across the GTA, children and teenagers are expected to increasingly be raised in single-parent family households or blended family households (Canadian Urban Institute, 1991b). A growing proportion of families will be two income families, thus potentially reducing the time available for waste diversion activities. Many other service providers in the GTA have moved toward rationalizing and integrating community-based services and facilities through future community hub-centres (e.g., based in school buildings).

Table 3.7 indicates that York Region has the highest average incomes of all Regions in the GTA for both 1981 and 1986.

### **3.4.2 Housing**

As of 1991, York Region had 150,485 households with the largest number of households being located in Markham (Table 3.9). York Region households are expected to increase to 314,510 by 2015. At 3.3 persons per household, York Region also has the highest number of people per household, the highest rate of home ownership (82.5 percent) and the lowest rate of rental housing at 17.6 percent of all Regions in the GTA.

Table 3.12 indicates that 80 percent of York Region's houses are single family dwellings; 9.1 percent are semis, rowhousing and townhouses; 3.4 percent low rise and 7.6 percent high rise. By way of comparison, 42.6 percent of the GTA is single family dwellings and 27.3 of the housing is high rise.

Due to preferences for an aging population to desire high-rise and multiple family dwellings, these housing types are expected to increase in the 1990s. Table 3.12 for example, anticipates that the amount of higher density housing in York Region will increase to just over 18 percent of the housing stock toward the end of the planning period.

### **3.4.3 Employment**

York Region provides 261,653 of the Region's employment opportunities, or 10.8 percent of the jobs in the GTA (see Table 3.15). Since 1981, York Region had the greatest job growth in the GTA, as seen on Table 3.13 and 3.14. As shown on Table 3.15, the Region is expected to provide 474,000 jobs by the year 2015.

As represented by employment opportunities, York Region's 14,625 firms are more broadly focused compared to other Regions. At 26.4 percent, manufacturing is the largest employer followed by wholesale services at 15.8 percent and commercial services at 13.8 percent (see Table 3.16). Since 1981, York Region has seen a decline in primary industries (agriculture), transportation, public administration and retail services. Areas of significant increase are construction and wholesale services. Table 3.16 indicates that York Region has considerably lower finance, insurance and real estate functions than the rest of the GTA.

In contrast to employment, Table 3.19 indicates that the service sector employs over 30 percent of the Region's residents, followed by wholesaling at 20.3 percent and manufacturing at 19.5 percent.

## **3.5 Peel Region**

### **3.5.1 Demographic Characteristics**

In 1991, Peel was the second most populated Region, with 732,798 residents. As indicated on Table 3.1, over 63 percent of Peel's residents are located in Mississauga. Table 3.2 indicates that both Peel and York Regions are expected to grow the fastest over the GTA 3Rs planning period. Like York Region, Peel Region has experienced more than double the growth rate of Metro Toronto.

Population projections for Peel indicate that by 2015, the population is expected to have 1,173,500 residents. This will be consistent with the expectation that the Regions will absorb most of the future growth of the GTA.

By language, English is still the largest language group; however, as indicated on Table 3.4, the frequency of English as a mother tongue had declined by 1991 to 72.7 percent. The second major language group is Italian (3.8 percent) followed by Portuguese (3.2 percent). The two fastest growing language categories are Chinese and Polish.

Compared to other Regions in the GTA, Peel Region has a higher Italian and Chinese population (by mother tongue) and the diversity of other language groups mirrors the diversity of the GTA.

As indicated on Table 3.5, Peel Region has proportionally more children (30.0 percent) than the GTA overall (26.0 percent). Along with Durham Region, Peel has a low percentage of older people with 7 percent being between the ages of 55 and 64 and 6.4 percent over 65 years of age compared to 8.8 percent and 10.3 percent respectively for the GTA.

Peel Region residents have household incomes that are average compared to the other Regions, with Table 3.7 indicating 1986 average household incomes of \$46,630.

### **3.5.2 Housing**

In 1991, Peel Region had 233,070 households. As indicated on Table 3.9, most of the households are located in Mississauga. Peel Region has more people per household compared to other Regions, reflecting younger families and extended family structures associated with some of Peel's cultural groups.

At 68.3 percent, Table 3.9 indicates that Peel has the second lowest rate of home ownership (31.6 percent rental) although it has a higher rate than the GTA average rate of home ownership of 58.9 percent. Table 3.10 indicates that the majority of Peel's dwellings are single detached, although, Peel Region also has the highest percent of semis, townhomes and row housing. The Region also has a higher proportion of high rises, at 23.3 percent.

Peel is expected to have 454,804 households by the year 2015, making it the second largest municipality behind Metro Toronto, as indicated on Table 3.11. The robust household growth expected over the planning period will include a doubling of the numbers of single family detached and high rise dwellings.

### **3.5.3 Employment**

Peel Region employment currently stands at 404,695 jobs represented by 15,494 employment establishments (1992) as shown on Table 3.14. While Peel Region is a distant second to Metro in terms of employment opportunities in the GTA, it has almost twice the number of jobs offered in Durham and Halton Regions. As shown on Table 3.16, most of Peel's employment growth from 1981 to 1992 has been in the manufacturing and wholesale sectors. Peel has experienced employment losses in the

transportation, retail and public administration sectors over the same time period.

The number of employees is expected to increase to 627,400 jobs by the year 2015 as indicated on Table 3.15. By the year 2015, both York and Peel Regions are expected to offer considerable employment opportunities within the GTA. Peel is expected to capture 24 percent and York Region an additional 25 percent of the employment growth in the GTA, while Metro's share of employment growth will be decreasing.

Labour force data (employed residents who may work in Peel or elsewhere) indicates the sectors in which Peel residents work. Peel Region had a labour force of 333,650 in 1986, as seen on Table 3.19. However, it is expected that Peel's labour force has declined from these levels due to the recession and Peel residents being more dependent on manufacturing employment opportunities. Table 3.20 indicates that labour force employment in manufacturing has declined, and has increased considerably in the commercial service sector since 1981.

## **3.6 Halton Region**

### **3.6.1 Demographic Characteristics**

Halton is the least populated region in the GTA with a 1991 population of 313,136. Table 3.2 indicates that Halton will have an increasing share of population growth in the GTA between 1991 and 2031. Except for Durham Region, Halton has the greatest percentage of people whose mother tongue is English (86.2 percent). Halton is reflective of the whole GTA in that it will experience an aging population between 1987 and 2011 (see Table 3.6). Halton Region households have a higher average income than the other regions except for York (see Table 3.7).

### **3.6.2 Housing**

Halton Region has the fewest number of total households in the GTA and has a similar average household size (see Table 3.8). Halton is typical of all other Regions except for Metro Toronto in its division of home ownership and rental. Halton is comprised primarily of single family residences (65.6 percent), semi/town/row houses (14.8 percent) and high rise apartments (14.7 percent). Between 1991 and 2015 the total number of households is expected to almost double.

### **3.6.3 Employment**

Employment projections from 1986 to 2015 (see Table 3.15) demonstrate a more than doubling of employment opportunities (119,000 to 265,265). Halton has the highest percentage of employment involved in finance, insurance and real estate (29.8 percent) of all the Regions in the GTA. Manufacturing still plays a significant role in regional employment (23.5 percent).



### 3.7 3Rs Management within the GTA

The current status of 3Rs management within the GTA is described in detail in the Ontario Ministry of Environment's 1992 status report: *Meeting the Challenge: Reduction, Reuse & Recycling Activities in the GTA*. The sections below are summarized from this report:

#### Roles and responsibilities

The current roles and responsibilities of regional and area municipalities for waste management activities in the GTA vary from region to region. In general, regional municipalities have authority over disposal, while area municipalities have authority over collection. Powers over 3Rs activities are not well defined in the applicable legislation and have led to two regional municipalities, Peel and York, placing a number of waste diversion initiatives on hold until legal issues are clarified. In spite of this, a number of regional municipalities have managed to develop impressive 3Rs programs and activities. The province is currently attempting to resolve these issues through new legislation.

#### Legal and Regulatory framework

The key laws, regulations and protocols currently in force relating to the management of 3Rs in the GTA are as follows:

- *The Environmental Protection Act (EPA)* is the primary act governing the approval of new waste management systems and sites in Ontario.
- *Ontario Regulation 347* (formerly Regulation 309), provides different levels of regulatory scrutiny to a variety of wastes ranging from hazardous wastes to municipal solid wastes.
- *The Environmental Assessment Act (EAA)* applies to specific waste management systems, sites and facilities which are considered to require a more comprehensive assessment than that provided by the EPA process alone.
- *The Consolidated Hearings Act* permits several hearings on the same system or facility under different Ontario acts to be combined and held at the same time.
- *The Waste Management Act, 1992* (formerly Bill 143), continues the IWA as a Crown agency and gives it additional powers to establish three long-term landfills in the GTA. It also allows the province to require major packaging users and the larger IC&I establishments to carry out waste audits and prepare waste reduction workplans.

- *The National Packaging Protocol (NAPP)* is a national agreement, supported by Ontario, on measures to reduce packaging being disposed of in Canada by 50 percent by the year 2000, with interim goals of 20 percent by 1992 and 35 percent by 1996.

In addition to legislation and agreements in place, the Ontario government has launched a number of important 3Rs initiatives since 1991. These include:

- *Waste Reduction Action Plan (WRAP)* expressed the Province's commitment, in February 1991, to implement strong regulatory measures to reduce, at source, the flow of valuable resources currently being landfilled.
- *WRO Initiatives Paper #1* established the basis, in October 1991, for the changes to Ontario Regulation 347 (Regulation 309) and the measures described above under the heading *Waste Management Act, 1992* concerning waste management audits and workplans.
- *Ministry of Municipal Affairs Discussion Paper - Municipal Waste Management Powers in Ontario* (also known as initiatives Paper #3) develops principles and proposals for new statutory powers regarding planning and management of waste, user charges, compensation, tipping fees and incineration bans, and re-allocation of powers between regional and area municipalities.
- *Incineration ban.* In April 1991, construction of any new municipal solid waste incinerators was prohibited in Ontario. This was promulgated as a regulation amending EPA Regulation 347 (formerly 309) in September 1992. In terms of the IWA landfill search for the GTA incineration was to be excluded as an "alternative to the undertaking". The ban does not apply to existing municipal incinerators and incineration of some specific wastes, subject to stringent controls.
- *Waste export control and local disposal.* In April 1991, the Environment Minister expressed the province's wish to encourage municipalities to dispose of their municipal solid waste as close as possible to where it originated. At present, some municipal waste is exported, as well as a substantial and increasing amount of IC&I waste. Export of IC&I waste is encouraged by low US tipping fees, the easing of US waste import regulations, high waste charges in the GTA, and mixed-waste surcharges in Metro Toronto, with the additional impetus of the difficult economic situation. However, when current amendments to US waste regulations come into force, many US landfills may close, which is likely to alter the disposal options of Canadian solid waste exporters.



## Regional Policies

### *Durham Region*

The Region has not approved any 3Rs policies and no 3Rs by-laws have been implemented by the Region or the lower tier municipalities. The Region is awaiting direction from the MOEE on regulations. The Region does not own a landfill, however Metro Toronto operates the Brock West landfill in Durham Region and has landfill bans on certain materials.

### *Metro Toronto*

Although Metro Toronto is quite active and has invested significantly in 3Rs programs, it does not have any current, approved 3Rs policies. The new Draft Metropolitan Official Plan, which has not yet been approved by Council, contains broad policies on solid waste management. In 1987, Metro Toronto began to prepare a solid waste management plan under the Solid Waste Environmental Assessment Project (SWEAP) with a comprehensive and detailed list of 3Rs policies. However, this initiative was replaced by the IWA process and the Draft Waste Management Plan and its 3Rs policies did not go before Council for endorsement.

### *Peel Region*

Peel Region does not have any formally approved 3Rs policies. A draft policy document has been prepared but it has not been approved. The difficulty according to the Region is that the Regional and lower tier municipal roles may change if the proposed MOEE regulations are put in place and change the roles. The Region is awaiting clarification from the Province.

The Region and lower tier municipalities have not approved specific 3Rs by-laws. There are no by-laws that direct residents to do something.

### *Halton Region*

The Region has implemented the following 3Rs related policies:

- Landfill bans for certain materials (September, 1988)
- Mandating recycling of five additional materials: aluminum foil, HDPE bottles, polystyrene, boxboard and fine paper.
- Allow gypsum wallboard to be recycled for residents at the container station.

The Region considers that it has established mandatory recycling by placing a ban on recyclables from landfills. This policy was implemented in January, 1991. The lower tier municipalities had to comply with mandatory recycling in order to comply with this restriction at the landfill.

### **3.8 Residential/Municipal Attitudes And Behaviours**

This section documents the residential and municipal 3Rs attitudes and behaviours identified in the GTA and in the Regions. It does not document existing programs in each of the Regions. It is intended to provide an indication of the prevailing attitudes and behaviours and can be used as the base on which to project future behaviour and types of social effects. The data was derived from: (a) interviews with Regional representatives (Schedule B); (b) interviews with IC&I Association representatives (Schedule C); (c) interviews with waste management facility operators (Schedule D); (d) analysis of case studies (Schedule E); and, (e) review of public opinion surveys, reports and published literature (Schedule F).

#### **Overview of Public Attitudes to the Environment: Public Opinion Surveys**

- People should make sacrifices to protect the environment. (Decima Research, Spring 1992)
- People are almost all concerned about the quality of the environment. (Decima Research, Fall, 1991; Spring, 1992; Fall, 1992)
- Most people believe the quality of the environment in their area is good and has stayed about the same. (Decima Research, Fall, 1991; Fall 1992)
- Most people are thinking about the whole world when they think about environmental issues that affect them - depletion of the ozone layer is considered the most important issue, and only 3 percent consider waste and garbage disposal to be the world's most serious environmental problem. (Decima Research, Summer, 1992)
- Most people are somewhat more optimistic about our ability to do something about the environment than they were a year ago (Decima Research, Fall 1992), mostly because ordinary people are trying harder (Decima Research, Fall, 1991; Fall, 1992); for those who are pessimistic, it is because governments are not trying hard enough. (Decima Research, Fall, 1991)
- Most people have made minor changes to their lives because of concerns about the environment. (Decima Research, Fall 1991; Spring, 1992; Fall, 1992)

- Among those who have made changes, the media was the most significant influence (Decima Research, Fall, 1991) and most believe their actions have a minor impact. (Decima Research, Fall, 1991)
- People believe that individuals should have primary responsibility for protecting the environment. (Decima Research, Fall, 1992)
- There is some agreement that the environment should be protected even at the expense of jobs. (Decima Research, Summer, 1992)

### 3.8.1 Waste Management

#### Overview of Public Attitudes to Waste Management: Public Opinion Surveys

The following public attitudes and Regional initiatives to waste management provide the waste management context for the 3Rs analysis.

- Thirty five percent of people surveyed believed they could reduce up to twenty percent of household garbage, "if they changed what they buy, and were careful to reuse, recycle and compost." Thirty two percent believe they could reduce the amount of waste they generate up to forty percent. Over a quarter (27 percent) believe they could achieve over forty percent reduction in waste generated. (Environics, 1990, p.15)
- About sixty percent of residents surveyed "are aware of some sort of action being taken to deal with the waste management problem." (Environics, 1992a, p.12). Though fifty seven percent of residents regard waste disposal as a "very serious problem" specific measures to manage waste ranges from a thirty six percent awareness of the search for landfill sites, thirty four percent unaware of anything being done to manage waste, and two percent awareness of composting. (Environics, 1992a).
- Fifty three percent of those surveyed attributed their source of awareness to daily newspapers and television. Current waste management programs such as Blue Boxes only account for a four percent source of awareness of a waste management problem. (Environics, 1992a)
- "Over two-thirds of GTA residents (70 percent) either strongly (34 percent) or somewhat (36 percent) agree" that municipalities should be responsible for managing the waste they respectively produce. (Environics, 1992a, p.13)
- Thirty seven percent would strongly (16 percent) or somewhat agree (21 percent) with requiring households to pay a fee for the amount of garbage they put out for pick-up. (Environics, 1990, p.16)

### *Durham Region*

- The Region is not aware of any concerns of the lower tier municipalities regarding a pay-by-bag system. (Watson, P., 1993b)
- The Region is not considering a wet/dry waste diversion program. (Watson, P., 1993b)

### *Metro Toronto*

- Metro Toronto has suggested that its area municipalities consider direct cost or pay-by-bag garbage collection programs, but has no jurisdiction to enforce such a program. (Pollock, A., 1993)
- The administration and implementation of a direct cost system might be complex and therefore difficult to execute. The costs of starting and sustaining such programs might outweigh their possible benefits. (Pollock, A., 1993)
- Metro Toronto completed a 3 stream (organics/recyclables/garbage) wet collection pilot project that included alternate week pick up of some streams, maintaining every week collection of food waste because of health and odour concerns. The results of the project are currently being evaluated. (Pollock, A., 1993)

### *Peel Region*

- The Region has implemented a landfill ban on certain materials. (Morgan-Fraser, L. & Williams, G., 1993)
- The attempts to unload or place inappropriate waste in landfill is an obstacle to increased waste diversion. (Morgan-Fraser, L. & Williams, G., 1993)
- A direct cost or pay-by-bag garbage collection program is being considered, although a survey of Peel residents and businesses identified a perception that direct cost systems are difficult to implement because waste management is a political issue and a service that people traditionally have not paid for properly. (Morgan-Fraser, L. & Williams, G., 1993)

### *Halton Region*

- The Region has implemented a landfill ban on recyclable material. (Lesnicki, V. & Mercer, A., 1993)

- The attempts to unload or place inappropriate waste in landfill is an obstacle to increased waste diversion. (Lesnicki, V. & Mercer, A., 1993)
- A direct cost or pay-by-bag garbage collection program is being considered, and is generally considered to be feasible. There currently exists a user pay service system at most of the Region's drop-off centre depots, regardless of the weight of the waste. At one depot, a cost is applied only after 150 kg. (Lesnicki, V. & Mercer, A., 1993)
- The Region might consider a 3 stream (kitchen/yard organics, recyclables and garbage) wet/dry diversion program in two years. Pick up of food waste will remain a component of an every week system. (Lesnicki, V. & Mercer, A., 1993)
- Oakville has implemented a bag limit for garbage pick-up. Burlington is currently (May, 1993) implementing a bag limit. (Lesnicki, V. & Mercer, A., 1993)
- The Region is studying lifting mechanisms for collection trucks that would weigh bags, as well as a tag system that would limit the number of bags a household could put out according to the number of tags issued. (Lesnicki, V. & Mercer, A., 1993)
- The Region will be moving to a single tier waste management system where the Region would manage collection and disposal of residential waste. Currently, the Region is responsible for disposal and the municipalities are responsible for collection. There are difficulties in coordinating 3Rs programs with the current split jurisdiction. There is, however, a benefit to the current division of responsibilities between the Region and municipalities from the customer service point-of-view, i.e., local foremen are more accessible to answer concerns than in a larger Regional infrastructure. (Lesnicki, V. & Mercer, A., 1993)

### **3.8.2 Residential Recycling and Collection**

#### **Overview of the 3Rs: Public Opinion Surveys**

- Forty eight percent of people surveyed were aware of the term "3Rs". Recycling was cited as the most well-known of the 3Rs, followed by reuse. (Environics, 1990)
- Eighty five percent agree that legislation should be enacted mandating that packaging should be classified as returnable, recyclable or disposable. Fifty one percent of those surveyed would support a requirement mandating governments to use recycled materials, regardless of whether they cost more. Fifty three percent would advocate compulsory participation in waste reduction. (Environics, 1990)
- Only thirteen percent considered reuse the most effective method of the 3Rs. Recycling and reduction were almost equally considered the most effective at forty one percent and thirty seven percent respectively. The analysis highlighted that most



of those who were aware of reduction as a 3R activity regarded it as "the best way to deal with the garbage problem." (Environics, 1990, p.8)

- More people (52 percent) would prefer a deposit system to reuse glass bottles rather than recycle glass bottles through the blue box program. "Reusing containers, and participating in recycling programs top the list of steps residents report taking to deal with the amount of garbage they throw out." (Environics, 1990, p.9)
- Seventy three percent of GTA residents participate in household waste recycling through the Blue Box program. Recorded participation is highest outside of Metro Toronto (82 percent). This could be attributed to the higher concentration of apartments and condominiums in Metro Toronto, many of which were not equipped with the Blue Box recycling program. Only thirty two percent of those living in apartments participate in the Blue Box recycling program. Extracting apartment dwellers from the participation level results in a 93 percent participation level of respondents who live in houses. For those who live in houses, two percent do not participate because it is too time consuming, and two percent do not participate because "they believe the program is ineffective." (Environics, 1990, p.12)
- Participation in the Blue Box program is higher in Halton Region (88 percent) than York (87 percent), Peel (85 percent) and Durham (68 percent) Regions. (Environics, 1990)
- Participation in waste reduction activities is high only for recycling - people sometimes will buy environmentally friendly products, avoid excessive packaging, avoid chemical pesticides, and a large number never compost. (Decima Research, Spring, 1992)
- Recycling is considered the most important of the 3Rs for protecting the environment. (Decima Research, Fall, 1992)
- More people oppose (52 percent) than support (47 percent) a charge to households of 50 cents a bag for collection, though this changes -- only slightly -- in some sub-groups (age 25-44, British and those expressing no ethnicity, Protestant, University educated, high income, full-time workers, small-town, Conservatives) (Environics, 1992b)
- People believe that environmentally friendly packaging is primarily the responsibility of governments (through regulation) and consumers. (Decima Research, Fall, 1992)
- Most people believe that companies are doing a good job to reduce packaging and few say companies have primary responsibility for ensuring that packaging is environmentally friendly. (Decima Research, Fall, 1992)



- People believe that environmentally friendly products are priced about the same or somewhat higher than others and that the quality is about the same. (Decima Research, Spring, 1992)
- People say they are willing to pay more for environmentally friendly products and disagree that convenience is more important to them. (Decima Research, Fall, 1991)
- People have qualifications about the belief that purchasers of non-green products should have to pay a lot more for these products. (Decima Research, Spring, 1992)

### **Overall Obstacles to Recycling**

- Apartment buildings are a gap in the success of household participation in recycling; in general, older buildings are not designed to handle the streaming of waste. (Hay Management Consultants, 1990)

### *Durham Region*

- The Region is not considering a mixed waste processing facility. (Watson, P., 1993b)

### *Metro Toronto*

- Metro Toronto will not implement a mixed waste processing or collection system because of capital costs, the failure rates of existing mixed waste facilities, and because a mixed waste facility runs contrary to its philosophy of personal involvement in waste diversion. (Pollock, A., 1993)
- There are no 3Rs by-laws in effect for the residential sector. (Pollock, A., 1993)
- Two obstacles encountered by Metro Toronto to increasing waste diversion in the residential sector are:
  - The cost of programs and cost sharing with area municipalities. The program cost for blue box recycling is currently significantly greater than that for landfilling; and,
  - An existing agreement states that after five years, collection costs are to be passed from Metro Toronto to the area municipalities. This creates a burden for area municipalities since the recycling fleet has to be replaced. (Pollock, A., 1993)
- Over the next five years Metro Toronto must contemplate the costs of continued 3Rs waste diversion programs, including incorporating the cost of recycling into the cost of the product to be passed on to the consumer. (Pollock, A., 1993)

- The division of responsibilities between the Region and area municipalities has worked well for both jurisdictions. If the area municipalities had to assume the costs of Blue Box programs, they might re-evaluate the system and move to less frequent collection. (Pollock, A., 1993)
- The centralizing of recycled materials collection and markets has given Metro Toronto more leverage in the market, since it can offer greater volumes and a steadier supply of materials. (Pollock, A., 1993)
- Metro Toronto 3R's Program met the 1992 Provincial recycling target of 25percent. Metro Toronto has found that participation is more difficult in multiple-family dwellings, and this therefore requires greater focus and effort. (Metropolitan Toronto 3Rs Program - Schedule E)

#### *Peel Region*

- The inclusion of contaminated material in Blue Boxes is an obstacle to increasing waste diversion. (Morgan-Fraser, L. & Williams, G., 1993)
- The Region is considering some form of mixed waste processing and/or collection program. (Morgan-Fraser, L. & Williams, G., 1993)
- Homogenization of Blue Box programs and direct cost systems for the residential sector may occur. (Morgan-Fraser, L. & Williams, G., 1993)
- Neighbourhood recycling depots will be established with street-locked collection containers in the downtown cores and in multi-residential dwellings. (Morgan-Fraser, L. & Williams, G., 1993)

#### *Halton Region*

- The Region is considering some form of mixed waste processing and/or collection program. (Lesnicki, V. & Mercer, A., 1993)
- The inclusion of contaminated material in Blue Boxes is an obstacle to increasing waste diversion. The Blue Boxes are also not big enough and are overflowing. (Lesnicki, V. & Mercer, A., 1993)

### **3.8.3 Residential Leaf and Yard Waste Collection**

#### *Halton Region*

- Over the next five years, the Region will be considering banning the collection of grass. (Lesnicki, V. & Mercer, A., 1993)

### **3.8.4 Residential Household Composting**

#### **Overview of Composting Behaviour**

- Although over half (52percent) of those surveyed report that they know what backyard composting involves and why it is done, only twenty two percent report composting waste in their backyards. More of those who live outside of Metro Toronto, especially Durham and York, claim to participate in backyard composting. (Environics, 1990)
- In the GTA in 1990, forty two percent of those surveyed did not participate in backyard composting because they lived in apartments (29 percent), or because they did not have backyards (13 percent). Of those who make up the rest of the statistics, ten percent did not have time, ten percent had no knowledge about composting, eight percent did not know how, six percent did not have room and five percent believed composting was too messy. (Environics, 1990)
- Of those surveyed who reported not participating, those in Metro Toronto tended to live in apartments while those living in York and Peel reported that they had never heard of composting. (Environics, 1990)
- If increased information and access to containers was provided, fifty three percent of those not currently composting would likely start to participate. (Environics, 1990)
- In comparison to backyard composting, if a municipal curbside program was implemented, sixty one percent said they would participate. Twenty eight percent of GTA residents thought collecting kitchen and garden waste was too awkward and messy. Twenty six percent were simply not interested and five percent report having no time to participate. (Environics, 1990)
- To discover the effect of a municipal program on backyard composting, respondents were asked if they would continue their backyard composting activities if they had a municipal program available to them. Three quarters (76 percent) would maintain their backyard composting activities. Nineteen percent stated that they would halt their backyard composting. Those who live outside of Metro Toronto, particularly those who live in Halton Region, would continue their backyard composting activities regardless of a municipal program. (Environics, 1990)

### *Durham Region*

- A study (Compost Management Associates Ltd., 1992a) evaluated three different types (Barrel, Soil Saver, Ecolyzer) of backyard composting units which were distributed to 60 selected homes in the Town of Newcastle from July to early September, 1989. Among the study findings were:
  - Nearly all of the participants planned to continue using their composters. Each participant surveyed reported that they would recommend backyard composting to their neighbours.
  - The vast majority of respondents were strongly supportive of the concept when asked, "What do you think about your composter and composting in general?"
  - Even those who reported that the activity was an occasional nuisance, felt that they would continue because it was the responsible thing to do.
  - The vast majority of respondents felt that the use of composters made a significant difference in the volume of waste generated by the household.
  - One-third to one-half of the respondents reported that the presence of the composters tended to influence their buying habits to be more reflective of conservator values.
  - A significant number of respondents reported that the experience had stimulated a greater interest in reading about environmental issues.
- A second study by the same firm (Compost Management Associates Ltd., 1992b) reviewed the first year results and summarized the findings from interviews with 64 households in Pickering. Among the study findings were:
  - Sixty-four percent of the households reported no problems with the installed composters. The most frequent complaint was that the composter filled too quickly, i.e., too small. Other complaints included problems with raccoons, bees, squirrels and mice.
  - Separating organic waste from other garbage did not appear to be a problem, although households are less enthusiastic about storing it before it is fed into the composter.
  - Virtually all respondents see the need for some type of kitchen container to collect food waste. In fact, 34 percent of the respondents claimed they would not be composting food waste if a kitchen container had not been provided.

- There was very little previous experience with backyard composting (only 14 percent).
- There was a great deal of support (98 percent) for the program among the households interviewed. Respondents felt that free composters and kitchen containers, with door-to-door delivery was the key to ensuring the success of the program. Respondents also noted that the provision of good instructional materials on composting was very important.
- The data on whether or not respondents would pay for composting units was somewhat contradictory. While many said they would pay \$21.00 for a unit - once they had the opportunity to evaluate it - it was by no means clear if people would pay the money up front upon delivery.
- Respondents also identified a need for: (1) a Master Composter Program; (2) a composting hotline; and, (3) a guide or newsletter for composters.

#### *Metro Toronto*

- The purpose of the Maclaren (1990) study was to provide a follow-up evaluation of Metro Toronto's home composting program. By the spring of 1990, Metro Toronto had distributed more than 19,000 subsidized home composting units (three types) to residents requesting them. Among the study findings were:
  - The reasons cited for composting were, in order of importance: reduce waste; benefits for the garden; availability of a subsidized unit; being persuaded by another person; and, some other reason.
  - Tending the composting pile was considered to be the most difficult task, with two out of five respondents reporting some difficulty here. There were few difficulties identified with any of the other activities.
  - More than one-half of the respondents reported difficulties with flies. Other difficulties identified (in order of prominence) included: winter composting; insufficient unit capacity; poorly fitting or insecure lids; odours; and, scavenging animals.
  - Importantly however, all of the problems noted above resulted in only 3 percent of the respondents discontinuing their composting activities. The study concluded that respondents are therefore pleased with the composting program.
  - Most households would make use of a municipal curbside collection program for compostable waste.



- Most respondents (82 percent) would not have purchased their units if they had only been available at retail prices. The availability of subsidized units was particularly important to those composting for the first time. (Maclaren, 1990)
- A second report (Metropolitan Toronto Works Committee, 1992) discussed the results of a survey questionnaire which was mailed to a sample of Metro Toronto residents (900 respondents) who had purchased composters from 1989-91. Among the report's findings were:
  - Nearly all (98 percent) of the composters were being used, and 85 percent were being used year-round. Only 2 percent of those surveyed expressed dissatisfaction with the units.
  - For most (60 percent) of the respondents, this was their first experience with composting.
  - Three-quarters of the respondents reported that they would not have purchased a composter without a subsidy.
  - Most respondents learned of the program through the media (newspapers, radio, T.V.) and friends.
  - The most common concerns, in order of importance, were: limited capacity; insecure doors/lids; insects, flies or bugs; scavenging animals; and, odours.
  - A majority of respondents would have composted more if a kitchen container had been provided.
  - Most respondents (87 percent) indicated that they would continue with backyard composting even if curbside collection of food waste was provided.
  - It can be generally concluded that the level of satisfaction with the backyard composting program is high.

### *Peel Region*

- The Region's waste management survey of residents and businesses found that the image of backyard composting has suffered because of media reports linking composting to a rodent problem. (Morgan-Fraser, L. & Williams, G., 1993)



### **3.8.5 Other Residential Waste Diversion (HHW, Toxic Taxi, Pilot Wet-Dry, White Goods Collection, White Goods Drop-Off, etc)**

#### *Peel Region*

- A more effective Household Hazardous Waste program is an initiative. Community recycling centres and Household Hazardous Waste depots at these centres will be established throughout the Region. This system will include bins for specific wastes at local areas such as shopping malls, and will be provided to local businesses. (Morgan-Fraser, L. & Williams, G., 1993)

#### *Halton Region*

- A more effective Household Hazardous Waste program is an initiative. (Lesnicki, V. & Mercer, A., 1993)

### **3.8.6 Composting Facilities**

- The most frequently registered complaint regarding leaf and yard waste composting facilities (throughout the GTA) is that of odour. This effect has been reported at three of the five leaf and yard waste composting facilities, and at one wet/dry composting facility. (Rhodes, J; Corvinelli, C; Dale, D; Cuthill, J. & Taylor, P; 1993)
- One composting facility noted a noise effect, which has since been mitigated. (Cuthill, J. & Taylor, P., 1993)
- One facility experienced an increase in seagulls circling the facility. This has not been mitigated. (Cuthill, J. & Taylor, P., 1993)

#### *Durham Region*

- The Region is not considering a neighbourhood composting facility, but is setting up a fully operational leaf and yard waste composting facility. (Watson, P., 1993b)

#### *Metro Toronto*

- Metro Toronto has some composting systems at multi-residential dwellings using a 3 bin system. Because there have been many problems (e.g., odour) with municipal composting facilities, neighbourhood composting facilities are unlikely. (Pollock, A., 1993)

- The centralized composting facility at the North Dufferin Transfer Station is not operating since the wet collection pilot project has just been completed. There were some complaints about odour emanating from this facility. (Pollock, A., 1993)

### *Peel Region*

- Peel Region is examining the feasibility of a joint venture with the Region of Halton for a centralized composting facility. The centralized composting facility would be a food/yard waste facility, serving a 3 stream wet/dry system. (Morgan-Fraser, L. & Williams, G., 1993)
- Brampton is considering a neighbourhood composting facility. (Morgan-Fraser, L. & Williams, G., 1993)
- There were a few odour complaints concerning the Region's leaf and yard waste composting facility. The effect was mitigated with a more frequent turning of the compost material. (Morgan-Fraser, L. & Williams, G., 1993)

### *Halton Region*

- A centralized composting facility is a component of a five year 3Rs plan. The facility is planned to be a mixed waste processing facility. The site will also include a Household Hazardous Waste depot and landfill. (Lesnicki, V. & Mercer, A., 1993)
- The Region is not considering neighbourhood composting facilities, although each municipality has a leaf and yard waste composting facility. (Lesnicki, V. & Mercer, A., 1993)
- The Region reported significant odour complaints concerning the Region's leaf and yard waste composting facility. The effect has been mitigated with the private contracting of facility operations. (Lesnicki, V. & Mercer, A., 1993)
- One privately owned composting facility is concerned that business may be suffering because of waste being hauled over the border to the U.S. (Scott, J., 1993)
- One in-vessel facility had an odour problem which has since been mitigated. (Rhodes, J., 1993)

### 3.8.7 Reuse Centres and Activities

*(Implications assumed under Section 3.8.2, Residential Recycling and Collection)*

### 3.8.8 Public MRF's

- Fourteen percent of GTA residents surveyed would be concerned about air pollution and eleven percent would be worried about the possible effects on human health of a local MRF. (Environics, 1990)
- Fewer than ten percent would be concerned about the noise (8 percent), the traffic of garbage trucks (6 percent), the odours (5 percent), the location (4 percent), or improper operation (4 percent). Three percent (each) would be troubled by the general environmental impacts, and its appearance. (Environics, 1990)

#### *Durham Region*

- A litter effect at the MRF has been mitigated. (Watson, P., 1993a)

#### *Metro Toronto*

- There have been no complaints registered regarding the operation of the MRF. (Pollock, A., 1993)
- A litter effect at the MRF has been mitigated. (Sawyer, B., 1993)

#### *Peel Region*

- A Regionally owned but privately operated MRF will be constructed. (Morgan-Fraser, L. & Williams, G., 1993)

#### *Halton Region*

- There is no Regionally owned MRF. Region representatives noted that siting an expanded or other waste management/diversion facility is difficult because of the siting process and the need for an appropriate piece of land with an adequate buffer zone. (Lesnicki, V. & Mercer, A., 1993)

### 3.8.9 Residential Recycling Depots and Transfer Stations

*(Implications assumed under Section 3.8.8, Public MRFs)*

### 3.8.10 Residential Promotion, Education and Policies

- None of the Regions surveyed have implemented official or draft 3Rs policies, principles or guidelines. None of the Regions' area municipalities have mandatory 3Rs by-laws. (Schedule B)
- Three out of four Regions surveyed (Durham, Peel and Metro Toronto) indicated that 3Rs initiatives are stalled because they have been waiting for some time for direction, guidelines and policies from the Province. (Watson, P., 1993b; Morgan-Fraser, L. & Williams, G., 1993; Pollock, A., 1993)
- Three Regions (Durham, Peel, Halton) mentioned that people seem to believe that they are participating enough in 3Rs activities and have no more time for increased 3Rs activities. This is seen as a barrier to increased waste diversion. (Watson, P., 1993b; Morgan-Fraser, L. & Williams, G., 1993; Lesnicki, V. & Mercer, A., 1993)

#### *Durham Region*

- In the early 90's, the Region conducted a telephone survey to gauge the impact of the Region's 3Rs promotion programs. Perceived obstacles to increased waste diversion in the Residential sector include the public perception that enough is being accomplished through the existing Blue Box program(s). Therefore, the Region feels the need to continue its promotional and educational programs to inform the public of the continued need for waste diversion/management. (Watson, P., 1993b)

#### *Metro Toronto*

- Metro Toronto had been preparing detailed draft policies as part of their Draft Waste Management Plan for the SWEAP program, but the IWA announcement has delayed consideration of the Plan. The Plan has not been approved by Council. (Pollock, A., 1993)

#### *Peel Region*

- The Region believes there is a need for continued education and promotion to overcome the obstacles to increasing waste diversion in the residential sector. (Morgan-Fraser, L. & Williams, G., 1993)

- The Region feels there is an entanglement of jurisdictional responsibilities between Region and area municipalities, although disentanglement is likely to occur within five years. (Morgan-Fraser, L. & Williams, G., 1993)
- The Region is waiting for clarification from the Province regarding 3Rs initiatives. Until then, there is difficulty in developing policies. The Region's and municipalities' roles will be established once the MOEE regulations are in place. Among the many inefficiencies and/or barriers to increased waste diversion identified by the Region are:
  - . The current division requires more effort to coordinate 3Rs programs and initiatives.
  - . If waste collection was centralized, the Region could save money.
  - . Disentanglement would free up staff to work on future programs.
  - . Streamlined programs would result in employees being more cognizant of their specific responsibilities. (Morgan-Fraser, L. & Williams, G., 1993)
- The Region conducted a waste management survey of residents and businesses which identified a number of obstacles to 3Rs including: people in larger urban centres perceive more of a time constraint to participating in 3Rs programs; reaching people efficiently with communication, advertising and promotion initiatives is difficult in large urban centres, and more difficult with nine or ten different languages represented. (Morgan-Fraser, L. & Williams, G., 1993)

### *Halton Region*

- The Region feels there is an entanglement of jurisdictional responsibilities between the Region and its area municipalities. (Lesnicki, V. & Mercer, A., 1993)
- The Region feels there is a further need for door-to-door education of residents regarding the 3Rs. (Lesnicki, V. & Mercer, A., 1993)
- The Region is considering water reduction as a 3Rs initiative. (Lesnicki, V. & Mercer, A., 1993)

### **3.9 Industrial, Commercial and Institutional Attitudes and Behaviours**

This section of the report documents the Industrial, Commercial and Institutional 3Rs attitudes and behaviours identified in the GTA and in the Regions. It does not document existing programs in each of the Regions. It is intended to provide an indication of the attitudes and behaviours and can be used as the base on which to project future behaviour and types of social effects. The findings are drawn from: (a) interviews with Regional representatives (Schedule B); (b) interviews with IC&I

Association representatives (Schedule C); (c) interviews with waste management facility operators (Schedule D); (d) analysis of case studies (Schedule E); and, (e) review of public opinion surveys, reports and published literature (Schedule F).

### 3.9.1 Overview of IC&I Attitudes

- Some operators within the IC&I sector want an increased consultative role with the MOEE to communicate their specific concerns, and to have input to policy/guidelines where appropriate. The Metro Toronto Board of Trade, for example, believes that a greater certainty regarding what regulations will be handed down from the Province would increase program implementation. The Board feels it would be helpful for members to be made aware of Provincial proposals or policies being considered for the future. (Colucci, R., 1993)
- The Toronto Construction Association noted the following obstacles to implementing 3Rs initiatives:
  - lack of space on construction sites for source separation;
  - financially not always worthwhile;
  - operationally, not all workers understand or have the time;
  - lack of markets; and
  - occasional contamination of materials by neighbours. (Lasanti, P., 1993)
- As examples of initiatives that would support members' participation in waste management initiatives, the Canadian Council of Grocery Distributors cited:
  - the need to develop a level playing field. The Grocery sector believes it is paying an inequitable portion of societal waste management costs; and,
  - the need for market development for recyclable materials. (Lannon, A., 1993)
- Over the next five years, Halton Region hopes to see an IC&I shared model approach to dividing waste management/diversion costs and responsibilities between the Province and the IC&Is that generate the waste. (Lesnicki, V. & Mercer, A., 1993)
- Metro Toronto Region feels that over the next five years in the IC&I sector:
  - There should be changes in the export situation and marketing of recycled products.
  - To be financially feasible for private sector collection, waste materials must have a high recycling value. Only a few materials currently do. New markets must be identified and encouraged.

Metro Toronto believes that the proposed 3Rs regulations would help with both these issues by limiting export and stimulating new markets. (Pollock, A., 1993)



- The patterns and changes in the recycling behaviour of business offices throughout Canada were the subject of a Decima survey conducted for Pitney Bowes of Canada Limited (1992). The results were based on 706 survey responses from a random sample of Pitney Bowes' 135,000 customers (note: no breakdown provided between small and large businesses). The poll results clearly demonstrated that the level of commitment to the importance of recycling programs was growing. Among the key findings of this survey were:
  - 72 percent of offices in Ontario had recycling programs, representing a 13 percent increase over the previous year.
  - 83 percent of offices in Ontario still felt that their company could do more to be environmentally responsible.
  - Specific activities which had shown increased levels of involvement over the previous year included: two-sided photocopying; bulk buying; recycling soft drink cans; recycling newspapers; and, recycling toner cartridges for copiers, fax machines and laser printers.
  - 79 percent of offices in Ontario supported government legislation requiring offices to establish recycling programs.
  - 29 percent of offices with recycling programs have formal purchasing plans which favour environmentally friendly products. (Pitney Bowes, 1992)
- All aspects of waste management represent significant costs to the IC&I sector. Sector representatives are generally concerned with the costs of 3Rs initiatives and regulations. (Schedule C)
- IC&I Associations feel that the size of a business is a factor in responding to or developing 3Rs initiatives. Economies of scale are important, with larger IC&I generators likely able to implement programs with relatively greater ease than smaller IC&I generators. For example:
  - the Ontario Restaurant Association maintains that aggressive 3Rs initiatives are more costly for smaller, non-chain restaurants that do not have the financial backing that chain restaurants might have (e.g., McDonalds - Wrigley, C., 1993); and,
  - Members of the Canadian Council of Grocery Distributors, that are part of chains, have more financial and administrative resources than those businesses that are franchises or independent. (Lannon, A., 1993)
- The Ontario Restaurant Association believes that waste audits to identify the types of waste generated by different associations would lead to more effective waste

management strategies in large urban centres like the GTA. (Wrigley, C., 1993)

- In the next two years, the Board of Trade of Metropolitan Toronto and member businesses will consider the implementation of further 3Rs initiatives. They recognize that they might be legislated to implement specific 3Rs programs. (Colucci, R., 1993)
- Over the next two years the Canadian Council of Grocery Distributors will be working on an Industry Packaging Stewardship Model. (Lannon, A., 1993)

### 3.9.2 IC&I Collection

- Three Regional Governments (Peel, Halton and Metro Toronto) cited the continued cross border hauling of IC&I waste - because of low U.S. tipping fees - as a barrier to increased waste diversion. There is no incentive for Ontario manufacturers to participate in recycling strategies if they can haul waste over the border at a significantly lower cost (Morgan-Fraser, L. & Williams, G; Lesnicki, V. & Mercer, A; Pollock, A., 1993).
- IC&I Associations also generally cite tipping fees as a regulation/policy that has created a competitive disadvantage for GTA companies. This also causes a reduction in business for landfill owners in Ontario. The IC&I sector believes that it is unfairly subsidizing waste disposal costs for the residential sector. (Schedule C)
- IC&I Associations generally perceive a lack of support by government and a lack of market infrastructures as obstacles to increasing waste diversion programs in the IC&I sector. (Schedule C)
- The Ontario Restaurant Association feels that the main obstacles to the implementation of 3Rs programs are cost and the lack of municipal infrastructures to support the programs. (Wrigley, C., 1993)
- The Metropolitan Toronto Board of Trade feels that if three stream waste management plans are cost efficient and environmentally effective methods to deal with waste, then this type of system could be welcomed by business (unlike the Blue Box program which they believe may be somewhat environmentally effective but not at all cost efficient). (Colucci, R., 1993)
- The Metropolitan Toronto Board of Trade feels that the lack of standardization of waste management/collection programs between municipalities creates some competitive disadvantages among member businesses. For example, for restaurants in municipalities where businesses have to pay higher waste collection costs, less money can be redirected into the business and accumulate as profit. (Colucci, R., 1993)

- The Metropolitan Toronto Board of Trade notes that the costs to business for waste management/diversion have been indirectly increased by the Waste Management Act, Provincial restrictions regarding landfill siting, and the prohibiting of incineration and transporting waste to willing host communities. (Colucci, R., 1993)
- More than three-quarters of the respondents to the Canadian Federation of Independent Businesses' (CFIB) survey believed that they needed improved collection of recyclable materials and better availability of recycling depots. This problem, i.e., lack of infrastructure, was by far the single most important concern identified by small business. As well, the Federation noted that while households are assisted with collection by local government, the municipalities often refuse to collect waste from business establishments. (Canadian Federation of Independent Businesses, 1991)
- The Canadian Federation of Independent Business also feels that collection infrastructure is important as many small businesses are and could be served by municipal waste haulage, recyclable collection and toxic taxis. (Mallet, T., 1993)
- The Region of Peel reported no specific Regional or municipal 3Rs by-laws, except IC&I bans on landfill and charges for those who do not comply. (Morgan-Fraser, L. & Williams, G., 1993)
- Halton Region noted that small businesses claim they cannot afford to participate in IC&I waste management/diversion initiatives but they produce too much waste to participate in residential Blue Box programs, which results in inefficient waste diversion and streaming. (Lesnicki, V. & Mercer, A., 1993)
- The Canadian Council of Grocery Distributors is concerned that a possible landfill ban on food would eliminate a reliable disposal option for members, for food that cannot be donated or sold. (Lannon, A., 1993)

### 3.9.3 IC&I Processing

- The Greater Toronto Home Builders Association's (GTHBA) "Build Green Program" has the objective of promoting and increasing consumer, builder, retailer, and manufacturer awareness of the potential for purchasing and using building materials which have recycled content. The GTHBA has found that:
  - There is significant public interest in the purchasing of good used building materials and products.
  - Bulk recycling bins at construction sites act as magnets for residential waste.
  - Source separation of waste is most difficult when a number of sub-contractors are involved.

- Waste haulers are concerned with unclear or inconsistently enforced landfill regulations/bans, scale of operations, location of source separation, and availability of markets. (Greater Toronto Home Builders' Association, 1991b)
- The Ontario Restaurant Association feels that there could be some legal liability problems in executing 3Rs programs for restaurants, in that there are health concerns/risks in storing food waste and a lack of storage space for this waste in most restaurants. The Canadian Council of Grocery Distributors also feels that health & hygiene, safety, and space issues are obstacles standing in the way of members' implementation of 3Rs programs. (Wrigley, C., 1993)
- One IC&I compost facility was surveyed. The facility's operations caused significant odour effect for local residents. The facility was shut down until the effects were corrected. (Scott, J., 1993)

### 3.9.4 IC&I Reuse

- One major restaurant has changed its operations to include a 3Rs program by separating and selling its food waste to a farmer for animal feed. (Wrigley, C., 1993)
- Liability for companies dealing with refillable containers might become an issue in the future depending on what fluid is in a container at any one time. (Dvorkin, L., 1993)

### 3.9.5 IC&I Reduction

- In 1991, the Canadian Federation Of Independent Businesses released a report (CFIB, 1991) entitled, *The Green Grassroots: Small Business And The Environment*. In this report the Federation documented the results of a survey on the increasing environmental awareness and related activities of its membership. The report noted, for instance, that because only 6 percent of the small business sector is involved in manufacturing activities, the most significant small business environmental impacts would come from the generation of landfill waste and packaging. Therefore, the major contribution that small businesses could make towards ensuring environmental sustainability would be to reduce the need for products and packaging and increase the emphasis on recycling. Among the other important survey findings were the following:
  - The majority of the Federation membership expressed concern about the state of the natural environment. The areas of concern included everything from air and water quality, to the treatment of garbage and toxic waste, to the erosion of wildlife habitats and farmland.

- Approximately 70 percent of the membership was engaged to some degree in product reuse or recycling. Significantly, 86 percent of the businesses that do recycle receive no assistance from the government in the form of either financing, incentives or collection services.
- The intensity of 3R practices varies somewhat by industry and province, and differences appear to be most dependent on the availability of local 3Rs infrastructure (e.g., infrastructure more developed in Ontario, Quebec and B.C.).
- More than one-third of the respondents reported that 3R practices have meant a minimum 20 percent reduction in the waste they throw out, and one out of seven reported reductions in excess of 50 percent.
- Approximately 87 percent of small firms strongly favour measures which would limit the production and use of non-recyclable or non-reusable containers.
- The Federation is concerned about the tendency of governments to regulate all businesses (large and small) as one group and households as another. Business regulations which are geared to large firms rely on a complex array of restrictions, permits and penalties. Small firms, on the other hand, often have market impacts which are not much greater than households. For example, small firms of less than 5 employees - which account for 75 percent of all businesses in Canada - are estimated to generate an average volume of waste equivalent to 2 households. But, the Federation states that these businesses are required to adhere to rules designed for much larger firms.
- Recycling and reuse initiatives are limited by the lack of collection infrastructure for reusable and recyclable materials. The kinds of options available to households and to large firms are often not available or not cost-effective because of the tremendous economies of scale in waste collection.
- The relative costs to small business in meeting government regulations (in both time and money) can be up to 15 times greater for small firms than for larger ones. (Mallet, T., 1993)
- Rather than use "big-stick regulatory approaches" to enforce changes, governments should focus on facilitating change and removing the obstacles to improved environmental behaviour for business and for the public. (Mallet, T., 1993)
- It is "wrong" to assume that an economy could adjust to a flood of environmental legislation without an effort to develop a "sustainable economy" as well as a sustainable environment. (Mallet, T., 1993)
- The inability of government to make timely and consistent rulings is seen as the major problem small firms have regarding regulation.



- IC&I Association members generally support waste reduction as a goal for the associations and individual member businesses. Among members of the Ontario Restaurant Association, for example, there is strong support for waste reduction as a business goal, if only to avoid having to pay high tipping fees. (Wrigley, C., 1993) And, the Packaging Association representative noted that ninety percent of member businesses are supportive of waste reduction as a goal for individual businesses. (Dvorkin, L., 1993)
- The Packaging Association of Canada has developed a National Packaging Protocol (NAPP) concept and a Task Force with the goal of harmonizing regulations and guidelines. The Association participates in OMMRI and Provincial initiatives, and follows international issues such as the possible harmonization of packaging practices in North America. For example, the Association is lobbying California to change its 65 percent required recycled content in glass bottles. (Dvorkin, L., 1993)
- Some businesses have installed retrofits for machinery as a waste reduction initiative. (Colucci, R., 1993)
- The Packaging Association of Canada believes that some 3Rs regulations/guidelines and principles have adversely affected member businesses. They are:
  - Deposit systems discourage Blue Box use; there is a need for profitable Blue Box items;
  - Purchasing policies by government that support recycled content are lacking; and,
  - The general Association belief is that government does not understand the economies of scale necessary to develop recycling industries. (Dvorkin, L., 1993)

### 3.9.6 IC&I Programs

- The Provincial Management Board Secretariat's (MBS) "Green Workplace" Program is primarily intended to integrate the 3Rs of waste management, energy and water conservation, environmentally-sensitive purchasing and building specifications, and air quality and hazardous materials management into government's day-to-day operations. The programs include procurement, recycling, composting, green product labelling, and some other pilot projects. The Program had achieved a 50 percent reduction in waste by 1992.
  - As a major force in the market, MBS must be sensitive to the fact that in a difficult economic climate, reduction is perceived as a threat to jobs in packaging and related industries. To minimize this perceived impact, recycling and reuse are being promoted in combination with reduction. (Schedule E)



- Loblaws Grocers Limited has found that:
  - While the percent diversion varies from store to store; overall Loblaws recycles 80 percent - 85 percent of its waste.
  - Costs vary from store to store, but overall there has been a positive return on investment.
  - Six factors have made the waste management program successful: (1) Proper attitude and dedication by employees, (2) Dedication by senior management to being a good corporate citizen, (3) Proper education and training of staff, (4) Genuine ethical concern for the environment, (5) Economic savings, and (6) Positive relationship between labour and management.
  - Such a program is very applicable to other grocery chains. However, all stores will need to develop programs to their unique circumstances. Smaller and older stores will have a more difficult time due to a lack of space for materials and equipment.
  - Loblaws still has significant concerns over possible re-fillable bottle legislation. (Schedule E)
- Sunnybrook Hospital has contracted its environmental services program to a waste management company since 1991. Recycling planning is done in co-ordination with eleven other regional hospitals in Ontario. So far:
  - The hospital is currently achieving 33 percent-36 percent diversion, with a 50 percent target for the end of 1993.
  - The program has received overwhelming staff support.
  - A key concern is the lack of storage space for recyclables.
  - 95 percent of the bio-medical waste is treated in a sterilizer (that eliminates any hazards) and is subsequently landfilled. Sharps, chemotherapy wastes, and pathological wastes are sent to the incinerator.
  - The program should be applicable to other hospitals with the combination of enthusiasm and a good management strategy. (Schedule E)
- The Packaging Association noted that cost-competitiveness was rated as the most important influencing factor for member businesses' involvement in 3Rs initiatives, although it was also noted that, currently, 3Rs initiatives are not easily implementable. To support members' increased participation in 3Rs programs, the Packaging Association would like to see the following:
  - Government procurement of recycled products;
  - Tax incentives for recycling research and development;
  - Cooperative enterprises between business and government; and,
  - Harmonization of regulations. (Dvorkin, L., 1993)

### 3.9.7 IC&I Promotion & Education

- IC&I Associations have developed or provided educational/promotional materials to their members on 3Rs. For example, The Metropolitan Toronto Board of Trade produced a Waste Management Code of Practice which members were encouraged to adopt, and the Board continues to publish a monthly magazine in which there have been articles relating to successful 3Rs programs implemented by member businesses. (Colucci, R., 1993)
- The Metro Board of Trade representative noted the lack of education and of a necessary infrastructure as significant obstacles to adopting 3Rs programs. (Colucci, R., 1993)
- The Canadian Federation of Independent Business' role in waste management for its members includes: conducting an environmental survey and distributing the results to businesses; publishing an environmental checklist for small businesses in cooperation with Pollution Probe; and, participating in the Canadian Standards Association's development of Environmental Management Standards that recognize small business needs. The Federation cited the following as important factors for the IC&I sector in establishing a waste management strategy for large urban areas: fairness of costs, consistent regulations and "pay-per-use." (Mallet, T., 1993)
- The Toronto Construction Association has provided to member businesses: education (seminars, information sharing); representation to MOEE (comments on policy and papers); and, involvement in developing a code of ethics. (Lasanti, P., 1993)
- The Toronto Board of Education has the following priorities over the next two years: full participation and cooperation of staff and students in the 3Rs initiatives outlined in the Recycling Handbook, and increased awareness of what is being thrown out (through audits). The Board feels that implementation of a MOEE reporting mechanism that would require every school to document its 3Rs activities, and continued funding for waste diversion programs, would help to support participation in 3Rs activities. (Foster, M., 1993)

## REFERENCES

Canada Mortgage and Housing Corporation, (Spring, 1993a), Toronto Real Estate Forecast, Toronto.

Canadian Federation of Independent Businesses, 1991, The Green Grassroots: Small Business And The Environment.

Canadian Urban Institute, (1991a), The Greater Toronto Area: an Urban Region, WP-1, Urban Focus Series: Toronto.

Canadian Urban Institute, (1991b), Metro in Transition: An Overview of Demographic, Economic and Public Policy Trends and their Implications for the Social Development Strategy of Metropolitan Toronto, Urban Focus Series: 90-10, Toronto.

City of Toronto Economic Development Committee, 1990, Medium Term Demographic and Employment Projections. Report from the Commissioner of Planning and Development, November.

Clayton Research Associates Ltd., (October, 1989a), Projections of Population and Households in the Greater Toronto Area. (Prepared for the Office of the Greater Toronto Co-ordinating Committee and The Regional Planning Commissioners' Subcommittee on Population Projections).

Clayton Research Associates Ltd., (October, 1989b), Projections of Population and Households in the Greater Toronto Area: Technical Volume. (Prepared for the Office of the Greater Toronto Co-ordinating Committee and The Regional Planning Commissioners' Subcommittee on Population Projections).

Clayton Research Associates Ltd., (December, 1990), Review of Population Projections for the GTA: One Year Later. (Prepared for the Office of the Greater Toronto Area).

Clayton Research Associates Ltd., (December, 1991), Migration Trends in the Greater Toronto Area. (Prepared for the Office of the Greater Toronto Area).

Colucci, R., 1993, The Board of Trade of Metropolitan Toronto. Personal Communication with E. Margles, Hardy Stevenson and Associates, April 23, 1993.

Compost Management Associates Ltd., 1992a, Region of Durham Backyard Composting Study, Draft Report. (Prepared for the Region of Durham).

Compost Management Associates Ltd., 1992b, A Field Examination of the Cost Effectiveness, Waste Diversion Potential, and Home-owner Acceptance of Backyard Composting Units. Phase II: The Pickering Research. (Prepared for the Region of Durham).

Corvinelli, C., 1993, Metro Toronto Avondale Leaf Composting Area. Personal Communication with L. Fedec, M.M. Dillon, April 14, 1993.

Dale, D., 1993, City of Scarborough Composting Facility. Personal Communication with E. Margles, Hardy Stevenson and Associates, April 18, 1993.

Decima Research, 1991, The Decima Quarterly Report - Environment Today. Fall.

Decima Research, 1992, The Decima Quarterly Report - Environment Today. Spring.

Decima Research, 1992, The Decima Quarterly Report - Environment Today. Summer.

Decima Research, 1992, The Decima Quarterly Report - Environment Today. Fall.

Dvorkin, L., 1993, The Packaging Association of Canada. Personal Communication with P. Shantz, Hardy Stevenson and Associates, April 26, 1993.

Environics Research Group Ltd., 1990, Public Attitudes Toward Waste Management: A Survey of Residents of the Greater Toronto Area. Final Report. (Prepared for the Solid Waste Interim Steering Committee).

Environics Research Group Ltd., 1992a, The Metropoll Report. Report to the Ontario Ministry of Environment on Issues Surrounding Waste Management in the Greater Toronto Area.

Foster, M., 1993, Toronto Board of Education. Personal Communication with E. Margles, Hardy Stevenson and Associates, April 29, 1993.

Greater Toronto Home Builders' Association/ORTECH, 1991b, Build Green Program: The Green Dream Home.

Hay Management Consultants, 1990, Systems Breakdown: Opinion Leader Research Program. Canadian Environmental issues and Localities. "Not In My Back Yard."

Hemson Consulting Ltd., 1989, Employment Forecasts, The Greater Toronto Area, to 2031 - Appendices. (Prepared for the Greater Toronto Coordinating Committee and the Regional Planning Commissioner's Sub-Committee on Population, Household and Employment Projections).

IBI Group (in Association with Stephen G. McLaughlin Consultants Inc.), (June 1990a), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 1. Description of Urban Structure Concepts. Greater Toronto Coordinating Committee. IBI Group (in Association with Stephen G. McLaughlin Consultants Inc.), (June, 1990b), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 2. Minimal Growth Option. Greater Toronto Coordinating Committee.

IBI Group (in Association with various consultants), (June, 1990c), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 6, Human Services. Greater Toronto Coordinating Committee.

IBI Group (in Association with various consultants), (1990d), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 7, Comparison of Urban Structure Concepts. Greater Toronto Coordinating Committee.

Lannon, A., 1993, Canadian Council of Grocery Distributors. Personal Communication with P. Shantz, Hardy Stevenson and Associates, May 22, 1993.

Lasanti, P., 1993, Toronto Construction Association. Personal Communication with P. Shantz, Hardy Stevenson and Associates, April 29, 1993.

Lesnicki, V. & Mercer, A., 1993, Halton Region. Personal Communication with E. Margles of Hardy Stevenson and Associates, April 19, 1993.

Maclaren, Virginia W., 1990, Metropolitan Toronto Home Composting Study. (Prepared for the Municipality of Metropolitan Toronto).

Mallet, T., 1993, Canadian Federation of Independent Businesses. Personal Communication with P. Shantz, Hardy Stevenson and Associates, April 28, 1993.

Ministry of Municipal Affairs, (1990), Municipal Directory. Toronto.

Ministry of Treasury and Economic, (July, 1989), Demographic Bulletin, Population Projections for Regional Municipalities, Countries and Districts of Ontario to 2011. Office of Economic Policy.

Metropolitan Toronto Works Committee, 1992, Home Composting Program Participants Survey. (for the Municipality of Metropolitan Toronto).

Morgan-Fraser, L. & Williams, G., 1993, Peel Region. Personal Communication with E. Margles of Hardy Stevenson and Associates, April 16, 1993.

Ontario Ministry of the Environment, 1992, Meeting the Challenge: Reduction, Reuse & Recycling Activities in the Greater Toronto Area.

Pitney Bowes of Canada Limited, 1992.

Pollock, A., 1993, Metropolitan Toronto. Personal Communication with J. Kauffman of Hardy Stevenson and Associates, April 19, 1993.

Rhodes, J., 1993, Township of Pittsburgh, Ontario Leaf and Yard Waste Composting Facility. Personal Communication with L. Fedec, M.M. Dillon, April 6, 1993.



Sawyer, B., 1993, Metropolitan Toronto Materials Recycling Facility. Personal Communication with J. Kauffman, Hardy Stevenson and Associates, April 13, 1993.

Scott, J., 1993, Scott's Composting Farm. Personal Communication with E. Margles, Hardy Stevenson and Associates, April 6, 1993.

Taylor, P., Compost Management Inc. & Cuthill, J., Harmony Planning Consultants, 1993, City of Mississauga Pilot Scale Compost Facility. Personal Communication with E. Margles, Hardy Stevenson and Associates, April 12, 1993.

Watson, P., 1993a, Public Works, Region of Durham. Personal Communication with L. Fedec, M.M. Dillon, April 6, 1993.

Watson, P., 1993b, Public Works, Region of Durham. Personal Communication with E. Margles, Hardy Stevenson and Associates, April 15, 1993.

Wrigley, C., 1993, Ontario Restaurant Association. Personal Communication with E. Margles, Hardy Stevenson and Associates, April 23, 1993.





## 4.0 ASSESSMENT AND EVALUATION OF THE 3RS SYSTEMS

### 4.1 Overview of Analysis

The results of the analysis of the potential social impacts and social acceptability associated with the six residential 3Rs systems and the six IC&I systems are presented in the System Net Effects Tables for each Region in Schedule A. The Residential 3Rs systems were assessed independently from the IC&I 3Rs systems due to the different nature of the management of the IC&I and municipal waste diversion (see EA Input Document, November, 1993).

The analysis followed the social impact assessment process and applied the analytical methods and data described in Section 2.1. In addition, the evaluations of the other study team members were reviewed and relevant findings incorporated into the assessment.

The assessment of the 3Rs systems was based on:

- the description of the social environment in the GTA and research on resident and IC&I 3Rs attitudes and behaviour;
- the application of the types of potential effects attributable to the various facilities, collection and processing components of the systems;
- the demographics, housing, employment and attitudinal and behavioural data on residents, municipalities and the IC&I sector; and
- the application of potential mitigation and enhancement measures.

Mitigation, management and enhancement are included as part of the assessment and evaluation of 3Rs systems because, if properly implemented, they can avoid, prevent, reduce the severity or redress the social effects associated with the various systems components. These are presented in the Summary Net Effects Tables in Schedule A and the Generic Net Effects Tables in Schedule H.

The mitigation, management and enhancement measures outlined in the system net effects tables are at a conceptual level. The evaluation of specific effects and appropriate mitigation measures was not possible at the level of detail of this analysis. However, it is appropriate in this analysis to identify: the general effects of all the systems components; possible mitigation and enhancement measures; and the likelihood of success of such measures.

The success of mitigation and/or enhancement measures are important to the overall

system ranking because if they are likely to avoid, prevent, reduce the severity of or redress the negative social effects, the net effects of the system will be reduced and its overall ranking may improve.

There are effects associated with some of the system components that are unlikely to be fully mitigated. Where this occurs, the effect and potential likelihood of success of the mitigation is noted. In some cases, where there is uncertainty about the magnitude and significance of the potential effect, such as in the case of employment and economic development, the mitigation or enhancement is outlined in general terms.

To assist in ranking 3Rs systems for the Social Criteria Group (Potential Local Community Impact; Potential for Broad Social Impacts; and Distribution of Social Costs and Benefits), the individual systems were qualitatively evaluated. This involved the identification and resolution of trade-offs among the systems by examining the relative advantages and disadvantages of each system vis-a-vis the others. The comparison was based only on those criteria for which there were significant differences between the systems. All criteria in the social environment criteria group are ranked equally in importance.

The first step of the system ranking was the ranking of each system by each individual criterion. This ranking was based upon the "system net effects by criteria" and "advantages/disadvantages by criteria" columns in the system summary net effects tables. Ranking each system equally was acceptable. A ranking of "Highest Ranked" is equivalent to "lowest impact" or "highest beneficial impact". Conversely, a ranking of "Lowest Ranked" is equivalent to "highest impact" or "least beneficial impact".

The criterion social acceptability is ranked similarly but is part of the Service Criteria Group. Social acceptability is ranked second in that criteria grouping.

### *Uncertainties/Limitations*

The analysis of the Residential systems proceeded without the benefit of a current survey of residents of the GTA or direct public input to the development and ranking of the criteria or to the analysis. Public opinion research conducted previously in the GTA and in other jurisdictions was reviewed, where available, to provide direction on the types of resident attitudes, behaviours and concerns.

The analysis of the IC&I 3Rs systems proceeded on and recognizes the following uncertainties:

the number and proportion of small businesses in the GTA is unknown, therefore it is difficult to identify what size of IC&I generator will be affected by the various components of the systems.

With all six systems, the increased amounts of regulation will add costs to doing business in the GTA. The effects may vary significantly among the generators. Some IC&I generators have incorporated the most comprehensive practices but others have not. While it is generally accepted that increased amounts of regulation may add costs, the actual effects on competitiveness in the GTA are difficult to predict and beyond the scope of this analysis. The added costs of waste management regulations may not independently encourage businesses to relocate outside the GTA, rather a combination of cost factors (labour, taxes, etc.) may lead to a loss of competitive advantage in the GTA.

## 4.2 System Net Effects

The System Net Effects Tables for the residential systems for each Region are based on the Generic Net Effects Tables for the GTA for both the Social Impact Criteria Groups and Social Acceptability Criterion (Schedule H).

The System Net Effects Tables for the Industrial, Commercial and Institutional Sector for the GTA for both the Social Impact Criteria Groups and Social Acceptability Criterion are presented in Schedule A.

Table 4.1 outlines the format used for the System Net Effects Tables. Column 1 lists the social criteria and indicators. For each indicator, a summary of the system net effects is presented in column 2. This summary was based on the generic component net effects tables, taking into account the characteristics of the region, the specific 3Rs components within each component category for each region, and effects of aggregating the components to a system.

The third column of Table 4.1 summarizes the system net effects for each criterion based on net effects identified for each indicator. The last column summarizes the advantages and disadvantages of each system over the other 3Rs systems for each criterion, taking into account the system net effects by indicator and criterion. Net effects common to all systems were not carried forward as advantages or disadvantages because they were not useful in evaluating the systems.

The evaluation of the systems by criterion is presented in the following section.

SAMPLE

**TABLE 4.1**  
**SYSTEM NET EFFECTS : SOCIAL ENVIRONMENT**

REGIONAL MUNICIPALITY : \_\_\_\_\_

SYSTEM : \_\_\_\_\_

Criteria/Indicator	System Net Effects by Indicator	System Net Effects by Criterion	Advantages/Disadvantages by Criterion
<b>Criterion 1 : Potential Local Community Impacts</b>			
Potential effects on residents			
Potential effects on special/sensitive groups			
Potential effects on communities			
Potential effects on community features and businesses			

## **4.3 Evaluation**

### ***Ranking of Systems by Criterion***

The system rankings by criterion were based on the "system net effects by criteria" and "advantages/disadvantages by criteria" contained in the individual System Summary Net Effects Tables (Schedule A).

Net effects common to all systems were not carried forward to the evaluation of the system options because they do not assist in distinguishing between systems. Although the systems are named for the dominant element of the system (e.g., Expanded Blue Box) the evaluation was based on the entire system and all of its components as described in the EA Input Document. The system rankings for the three Social Environment Criteria are discussed below and summarized in the appropriate Tables (by Region). The overall system rankings can be found in the top row of the Tables.

For the purpose of the Social Environment evaluation, Systems 6A and 6B were considered to be essentially the same and are referred to as System 6.

### **4.3.1 Durham Region**

#### **4.3.1.1 Social Impact Criteria**

##### ***Potential Local Community Impacts***

Potential Local Community Impacts were anticipated as a result of siting new 3Rs facilities and due to the expansion and increased use of existing facilities and non-optimal operating conditions. The potential effects of increased volumes of materials flowing through existing facilities were taken to be the same for all systems and did not lead to one system being ranked over another for this factor.

Systems 1 (Existing), 2 (Existing/Committed) and 3 (Direct Cost) were all ranked highest because all of the necessary facilities are in place, while the other systems require expansion of or new facilities. The improvements to the MRF were not considered an significant enough effect to change the ranking. Although there is the potential for social effects from illegal dumping to occur with System 3 (Direct Cost), the significance of the effects is uncertain and not considered important enough to change the ranking.



Systems 4 (Expanded Blue Box), 5 (Wet/Dry) and 6 (Mixed Waste Processing), all require expansion of existing facilities and/or new facilities. System 4 was ranked second highest. It requires either expansion to the existing MRF or a new MRF and depots. The potential displacement and disruption effects, while more significant than for systems 1, 2 and 3, are less significant than for systems 5 and 6.

System 5 (Wet/Dry) was ranked second lowest because, in addition to the facilities in System 4 (Expanded Blue Box), it has an additional composting facility for wet waste with the resulting potential effects.

System 6 (Mixed Waste Processing) was ranked the lowest because it has the greatest potential for displacement and disruption effects. This system will have the same facilities as systems 1, 2 and 3, but will also include a mixed waste processing and composting facility. It is expected that the effects of this facility will be more significant than the effects of the separate MRF and composting facility of System 5.

#### *Potential for Broad Social Impact*

The systems were evaluated based on their potential positive and negative social impacts on the Region's broad social environment in terms of the lifestyle of people, and the employment and economic development opportunities in the region over the planning period.

System 4 (Expanded Blue Box) was the highest ranked because it provides the potential for residents to continue to change their lifestyle in a way that is familiar to them while encouraging separation of a greater number of materials, more frequently and with less error than the other systems. Systems 3 (Direct Cost), 5 (Wet/Dry), and 6 (Mixed Waste Processing) have a greater potential for faulty source separation, both deliberate and inadvertent. Systems 1 (Existing) and 2 (Existing/Committed) do not provide as many source separation opportunities to as great a number of people. System 4 also has greater potential for additional employment and economic development than systems 1, 2, and 3, due to a more reliable supply of materials for recycling and "green" industries.

System 3 (Direct Cost) was ranked second highest because it too should encourage additional change to a lifestyle that incorporates higher levels of personal involvement by residents in the management of their wastes. This System also has greater potential for additional employment and economic development than Systems 1 (Existing) and 2 (Existing/Committed) due to a more reliable supply of materials for recycling and "green" industries. However, there is a greater potential for some residents to engage in illegal dumping and incineration to reduce the amount of waste

for which they have to pay collection costs. In addition, it is uncertain how the system will be implemented in apartment buildings and in rural areas.

System 5 (Wet/Dry) was ranked third because, although it has potential to increase employment and economic development by providing a more reliable supply of materials to recycling and "green" industries with less contamination than System 6 (Mixed Waste Processing), it is uncertain whether the system will achieve a change in lifestyle in the region that incorporates personal involvement in the management of waste. The opportunity exists for residents not to separate their recyclables and compostables, but instead to put them into the garbage stream. In addition, this system may be difficult and inconvenient to implement in apartment buildings and in rural areas. Furthermore, there are potentially a number of inconveniences for a variety of groups associated with the bin system.

Systems 2 (Existing/Committed) and 6 (Mixed Waste Processing) were ranked the second lowest because although they are likely to have some different types and magnitudes of effects, they were determined to have a similar potential net change in the Region. The net change for these systems is considered less positive than Systems 3, 4, and 5. System 2 has potential for only a small positive increase in employment and economic development opportunities, and for support of a change in lifestyle to more personal involvement of residents in managing their wastes. System 6 has greater potential for employment and economic development through the supply of greater volumes of material for industries than System 2, but it may reduce the participation of residents in source separation and may not support further development of the 3Rs. If residents participate fully in this system it may be somewhat inconvenient.

System 1 was the lowest ranked because it is unlikely to influence a change in lifestyle to incorporate personal involvement in the management of the household's waste. This system is unlikely to have a positive effect on employment and economic development as there is likely to be no significant increase in the supply of materials to the recycling and "green" industries and there is less requirement for manufacture and construction of the system's components (e.g., backyard composters).

### *Distribution of Social Costs and Benefits*

Potential distributional effects were predicted to occur as a result of lifestyle changes on some groups in the region and on future generations. System 4 (Expanded Blue Box) was ranked the highest due to its overall positive current and future generation

effects. It provides 3Rs service to more people than systems 1 (Existing), 2 (Existing/Committed), and 3 (Direct Cost) and continues the growth in changes to 3Rs lifestyle/behaviour that should have greater benefit to future generations than Systems 1 (Existing), 2 (Existing/Committed), and 3 (Direct Cost). It also has fewer negative distribution effects in the planning period due to fewer facilities being required than Systems 5 (Wet/Dry) and 6 (Mixed Waste Processing).

Systems 3 (Direct Cost) and 5 (Wet/Dry) were ranked equally as the second highest due to a number of trade-offs. Both have potential for significant benefit to future generations (with some uncertainty about the magnitude of effect), although with System 5 (Wet/Dry) there is a potential concern that residents may not actively source separate, and with System 3 (Direct Cost) that illegal dumping and burning may occur. System 5 (Wet/Dry) also has a more equitable distribution of 3Rs service, although there is a concern that it may not be feasible for the elderly, disabled, rural and apartment residents. With System 5 (Wet/Dry) there is also a potentially greater negative distribution effect from facilities than for Systems 1 to 4. Direct Cost has the potential to place a financial burden on large households and its application to multi-family and rural areas is uncertain. It also has a more equitable distribution of 3Rs service than either Systems 1 (Existing) or 2 (Existing/Committed).

Systems 2 (Existing/Committed) and 6 (Mixed Waste Processing) were ranked equally as the second lowest. System 2 has the second lowest positive effect on future generations with minimal additional support over System 1 (Existing) for changes in lifestyle to encourage greater personal involvement by residents in the management of their waste. It has a small improvement through the provision of 3Rs service to a greater proportion of households than System 1. System 6 has the potential for significant negative distributional effects on some residents from the mixed waste processing facility and the uncertainty of the benefit to future generations through the diversion of more material from landfills with the possibility of influencing behaviour away from the 3Rs. However, it improves the distribution of services over Systems 1 and 2.

System 1 (Existing) was ranked the lowest because it is likely to have the least positive distribution effects on future generations by not encouraging a significant change in the lifestyle of the current generation toward greater personal involvement of residents in the management of their wastes. It also does not provide as great an improvement in the distribution of 3Rs service to residents as the other systems do. It has the least negative distribution effects due to facilities.

### ***Overall System Ranking***

By considering the systems ranking by criteria and the criteria rankings, noting that all criteria were ranked equally, an overall system ranking was completed for the Social Environment Criteria Group on a qualitative basis. The evaluation considered trade-offs among the rankings for each system and each criterion. There may be significant potential effects from the 3Rs systems and the potential effects for each criterion may occur throughout the life of the system and some may continue beyond the planning period. The overall rankings and summary of analysis are presented in Table 4.2.

Systems 3 (Direct Cost) and 4 (Expanded Blue Box) were the highest ranked systems overall. System 4 was ranked highest for the criteria of Potential for Broad Social Impact and Distribution of Social Costs and Benefits and second highest for Potential Local Community Impacts. System 3 was ranked highest for Potential Local Community Impacts and second highest for the other two criteria. Due to some of the uncertainties involved in the analysis, a judgement could not be made on which of the two systems should be ranked higher than the other.

System 5 (Wet/Dry) was ranked second highest on the basis that it was the second highest ranked for the Distribution of Social Costs and Benefits and third highest ranked system for Broad Social Impact criteria. It ranked as the second lowest for Potential Local Community Impact. These rankings, overall, provided input to a ranking of System 5 higher than Systems 1, 2, and 6. Although Systems 1 and 2 were ranked higher for the Potential Local Community Impact, the rankings for Potential for Broad Social Impact and Distribution of Social Costs and Benefits were significantly higher for System 5 compared to Systems 1 and 2.

System 2 (Existing/Committed) was ranked the second lowest. It was ranked the highest for the Potential Local Community Impacts criterion and second lowest for the other two social criteria.

Based on the uncertainties involved in the analysis, a judgement could not be made as to whether System 1 (Existing) or System 6 (Mixed Waste Processing) should be ranked higher. System 1 was ranked the highest for Potential Local Community Impacts and the lowest for both Potential for Broad Social Impact and Distribution of Social Costs and Benefits. System 6 was also ranked the lowest because it was ranked as the lowest for Potential Local Community Impact, and second lowest for both Broad Social Impact and Distribution of Social Costs and Benefits.



#### **4.3.1.2 Social Acceptability**

The social acceptability of each system was evaluated on the basis of the potential effects of the systems on participation, attitudes and perceptions of 3Rs activities and willingness to pay for the system (see Table 4.3). Based on these indicators, System 4 (Expanded Blue Box) was ranked the highest because residents and municipalities are familiar with the system components and can be expected to respond more quickly and more positively to the system. System 4 will provide an improved level of service to residents (e.g., weekly collection of the Blue Box) which is likely to encourage greater participation. In addition, costs are acceptable, assuming current levels of subsidies continue.

Systems 3 (Direct Cost) and 5 (Wet/Dry) were ranked the second highest because they both have the potential to encourage greater participation in 3Rs and both are suitable for the low density urban areas of Durham. There are uncertainties for both systems concerning the participation by apartment households and rural residents. With System 3 there is the potential for controversy surrounding direct cost and the possibility of illegal burning and dumping. With System 5 participation by elderly and disabled groups may be difficult. Furthermore, the Wet/Dry system may be unacceptable to residents and municipalities if the costs are high. Both systems are ranked higher than Systems 1, 2 and 6, because they have greater potential to encourage stronger positive attitudes and behaviour toward the 3Rs.

Systems 1 and 2 were the third highest ranked because, although residents are familiar with the components of the systems and costs are acceptable (if current subsidies continue), they are unlikely to increase participation by individuals in 3Rs activities as much as Systems 3, 4, and 5.

System 6 was ranked as the lowest because the mixed waste processing and composting facility operation is unlikely to continue to operate due to odour problems; it does not encourage source separation and could reduce individual participation in some of the components of the system (e.g., Blue Box); and, the costs for the mixed waste processing and composting facility are likely to be less acceptable to residents and municipalities. No distinction was made between Systems 6A and 6B.

TABLE 4.2

DURIAM REGION  
NET EFFECTS SUMMARY FOR SOCIAL ENVIRONMENT

Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
<b>IMPACT</b>						
<b>Social</b>	Lowest ranked	Second lowest ranked	Highest ranked	Highest ranked	Second highest ranked	Lowest ranked
Potential Local Community Impacts	Highest ranked due to: systems 1, 2 and 3 have the same facilities; potential disruption effects are due to increased use of existing facilities	Highest ranked due to: systems 1, 2 and 3 have the same facilities; potential disruption effects are due to increased use of existing facilities with increased volumes of materials and improvements to the existing MRF	Highest ranked due to: systems 1, 2 and 3 have the same facilities; potential disruption effects are due to increased use of existing facilities with increased volumes of materials and improvements to the existing MRF	Second highest ranked due to: this system has the same facilities as 1 - 3, but requires expansion of existing or a new MRF and new depots; potential for displacement and disruption effects due to expanded use of existing facilities and expansion of an existing MRF or new MRF and new depots	Second lowest ranked due to: this system has the same facilities as 1 - 3, but requires a new centralized composting facility for wet waste, expansion of existing or a new MRF and depots;	Lowest ranked due to: greatest potential for displacement and disruption of residents, community features and disruption of community due to new mixed waste processing and composting facility



Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential Local Community Impacts	potential effects are likely less significant than systems 4 - 6	potential effects are likely less significant than systems 4 - 6	potential effects are likely less significant than systems 4 - 6 potential for effects from illegal dumping/burning (magnitude uncertain)	potential effects are likely less significant than systems 5 and 6, but more than 1 - 3	potential displacement and disruption effects due to expanded use of existing facilities, new composting facility, depots and expansion of existing MRFs or a new MRF. potential effects are likely less significant than system 6, but more than 1 - 4	potential for health concerns associated with processing and composting facility

Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential for Broad Social Impact	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>unlikely to maximize potential for lifestyle change</li> <li>limited potential for additional employment and economic development in the short or long term.</li> <li>most convenient system for residents (with system 2)</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potential to increase but not maximize the potential for lifestyle change</li> <li>some additional employment and economic development in the short and long term</li> <li>most convenient for residents (with system 1)</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potentially fosters greater awareness of benefit of 3Rs and should encourage change to more sustainable lifestyle</li> <li>some potential additional employment and economic development in the short and long term with more reliable supply of materials for recycling</li> <li>potential increase in illegal disposal and incineration by households</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for residents to participate more effectively in source separation than other systems due to familiarity</li> <li>potential to increase but not maximize the potential for lifestyle change</li> <li>potential for additional employment and economic development in the short and long term with more reliable supply of materials for recycling</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for increased economic development with more reliable supply of materials for recycling</li> <li>industries with less contamination than mixed waste</li> <li>uncertain if the system will maximize positive lifestyle change (could reduce the participation in source separation)</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for increased economic development with more reliable supply of materials for recycling</li> <li>however potential for greater contamination of the recyclable and compost streams than the other systems</li> <li>unlikely to maximize positive lifestyle change</li> </ul>

Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential for Broad Social Impact			<p>potentially less convenient than systems 1 or 2</p>	<p>potential for greater inconvenience than systems 1 - 3 (considered low effect)</p>	<p>potential for greater inconvenience than systems 1 - 4. Variety of lifestyle inconveniences associated with larger bins; inconveniences for elderly, disabled and other groups with wet/dry bins appears to be different and inconvenient to implement in high density (low proportion of Durham) and rural areas</p>	<p>may reduce the amount of household source separation potential for greater inconvenience than systems 1 - 3, if residents participate fully</p>

Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Distribution of Social Costs and Benefits	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potentially least positive effect on future generations due to least potential to influence future 3Rs behaviour</li> <li>least positive effect on distribution between household types as some households provided with greater opportunities to participate than others</li> <li>least negative distribution effects as no new facilities are required (equal for systems 1 - 3)</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potentially second least positive effect on future generations due to least potential to influence future 3Rs behaviour</li> <li>potentially more equitable distribution of 3Rs services between housing types than system 1, but less than systems 3 - 6</li> <li>least negative distribution effects as no new facilities are required (equal for systems 1 - 3)</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential increased financial burden for large households</li> <li>potential for positive benefit to future generations uncertain but should have greater benefit than systems 1 and 2 (depends on amount and effects of illegal dumping/burning).</li> <li>potentially more equitable distribution of 3Rs services between housing types than systems 1 and 2, but less than 4 and 5</li> </ul>	<p>Highest ranked due to</p> <ul style="list-style-type: none"> <li>more equitable distribution of 3Rs opportunities than systems 1, 2 and 3 as most households are provided with opportunities to participate</li> <li>potentially positive distributional effects for current and next generation with continuing growth in changes to 3Rs lifestyle/behaviour; current generation and individuals taking greater responsibility for managing their resources</li> <li>second least negative distribution effects due to facilities, effects greater than 1 - 3, but less than 5 and 6</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>more equitable distribution of 3Rs opportunities than systems 1, 2 and 3</li> <li>potential for greater benefit to future generations from higher volumes of waste diverted but may have negative effect on future 3Rs behaviour</li> <li>uncertain of the application to multi-family second most negative distribution effects due to facilities, greater than 1 - 4, but less than 6</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>improved distribution effects by providing 3Rs service to more people than systems 1, 2 and 3</li> <li>greatest potential for negative distribution effects due to facilities</li> <li>potential for greater benefit to future generation from highest volumes of waste diverted but may have negative effect on future 3Rs behaviour</li> <li>participation in source separation</li> </ul>

TABLE 4.3

DURHAM REGION  
NET EFFECTS SUMMARY FOR SOCIAL ACCEPTABILITY

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Service						
Social Acceptability	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>Maintain or small positive increase in 3Rs behaviour</li> <li>No changes to the system; residents are familiar with it</li> <li>Not likely to encourage greater individual action</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>Small positive increase in 3Rs behaviour</li> <li>Minor changes to the system; residents are familiar with it</li> <li>Not likely to encourage greater individual action</li> <li>Costs acceptable to residents and municipalities if current subsidies continue</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential to encourage greater participation by individuals in 3Rs</li> <li>Potential for controversy for some municipalities in the short term;</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>Residents and municipalities are familiar with the system;</li> <li>participation likely to increase with education and promotion</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>Suitable for the low density urban areas of Durham;</li> <li>application to and acceptance in high rise apartments and rural areas uncertain.</li> <li>Ethnic homogeneity suggests education program may be effective</li> <li>Acceptability of the system may be affected by odour, health and vermin effects from food waste composting facilities</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential for processing and composting facility to be unacceptable.</li> <li>System does not encourage source separation;</li> <li>could reduce participation in blue box and household composting</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Social Acceptability	<ul style="list-style-type: none"> <li>Costs acceptable to residents and municipalities if current subsidies continue</li> </ul>		<ul style="list-style-type: none"> <li>Potential for controversy reduced if education and consultation program implemented and appropriate direct cost options selected for the region</li> <li>Difficult to implement direct cost and composting in high density housing and unlikely to significantly increase participation in high-rises (represent a low proportion of households in Durham)</li> <li>Uncertain of implementation of direct cost in rural, self haul areas</li> <li>Potential for more illegal dumping and incineration than the other systems</li> </ul>	<ul style="list-style-type: none"> <li>Costs are acceptable if current level of subsidies continue</li> <li>If not, municipal costs may not be acceptable and service may be reduced, decreasing the effectiveness of the system</li> </ul>	<ul style="list-style-type: none"> <li>Residents may not separate high proportion of food waste, particularly in winter</li> <li>Potential for a variety of inconveniences which may reduce its popularity</li> <li>Potential for contamination of recyclable and dry streams because people are unwilling, unable or lack knowledge to source separate properly</li> <li>Attaining high levels of participation difficult for elderly, disabled, multi-family households and in the initial phase, some language groups</li> </ul>	<ul style="list-style-type: none"> <li>Residents and municipalities may be unwilling/unable to pay for the high capital costs</li> <li>Potential for higher contamination of recyclables than the other systems because people are unable, unwilling or lack knowledge to source separate properly</li> </ul>



### **4.3.2 Metro Toronto**

#### **4.3.2.1 Social Impact Criteria**

##### ***Potential Local Community Impacts***

Potential Local Community Impacts can be anticipated as a result of siting new 3Rs facilities and due to the expansion and increased use of existing facilities and non-optimal operating conditions. The potential effects of expanded use of existing facilities were taken to be the same for Systems 1 (Existing), 2 (Existing/Committed), 3 (Direct Cost) and 4 (Expanded Blue Box).

System 1 (the existing system) has all of the necessary facilities in place while the other systems require expansion of or new facilities. As a result, System 1 was ranked the highest.

Systems 2 (Existing/Committed system), 3 (Direct Cost) and 4 (Expanded Blue Box) were ranked the second highest because they all require the same new facilities. The differences in effects are attributable to the expanded use of those facilities. Although there is likely to be additional volumes of materials handled at the facilities in Systems 3 and 4, the materials will be mainly dry and the importance of the potential social effects is uncertain. Although there is the potential for social effects from illegal dumping to occur with System 3, the significance of the effects is uncertain.

The difference in the potential effects of Systems 2, 3, and 4 compared to System 5 (Wet/Dry) is likely to be small. System 5 (Wet/Dry) was ranked second lowest because of the increased volumes of all types of materials, and the addition of food waste to the composting stream. The health and odour issues associated with the composting facility may be more significant than with the other systems.

System 6 (Mixed Waste Processing) was ranked lowest due to the requirement for a mixed waste processing and composting facility and the attendant odour effects and health issues.

##### ***Potential for Broad Social Impact***

The systems were evaluated based on their potential positive and negative social impacts on the Region's broad social environment in terms of the lifestyle of people, and the employment and economic development opportunities in the region over the planning period.

System 4 (Expanded Blue Box) was ranked the highest because: it has the potential for residents to participate more effectively in source separation due to their familiarity with the system; it will contribute to affecting lifestyle change; and, it offers potential for additional employment and economic development from the support of recycling and green industries. There is the potential for greater inconvenience than Systems 1, 2 and 3, but, as most people are willing to take on some inconvenience for actions that they think will improve the environment, this is not considered significant. Systems 3, 5 and 6 have a greater potential for faulty source separation, both deliberate and inadvertent. Systems 1 and 2 do not provide as many source separation opportunities to as many people. System 4 also has greater potential for additional employment and economic development than systems 1, 2 and 3 due to a more reliable supply of materials for recycling and "green" industries.

Systems 2 (Existing/Committed) and 3 (Direct Cost) were ranked as the second highest. System 3 should be effective in low density areas because, by charging for garbage disposal, residents are given an incentive to source separate more consistently. It should help encourage a change to a lifestyle that incorporates 3Rs behaviour (and adapts to government policy). It should also increase the opportunities for employment and economic development over Systems 1 and 2. However, in System 3 there is a potential for some residents to engage in illegal dumping to reduce the amount of waste for which they have to pay collection costs. The application of System 3 (Direct Cost) in apartment buildings is uncertain; it does not represent an additional incentive to apartment dwellers to recycle and therefore will not lead to increased materials. System 2 has limited economic and employment and development opportunities, and limited support of a change in lifestyle to more personal involvement of residents in managing their wastes. However, it will be convenient for residents, is feasible in high density areas, and the costs should be acceptable to apartment owners/managers.

Systems 5 (Wet/Dry) and 6 (Mixed Waste Processing) were ranked the third highest because they have the potential to increase employment and economic development by providing a more reliable supply of materials to recycling and "green" industries, although System 5 has less potential for contamination than System 6. However, it is uncertain as to whether System 6 will achieve a change in lifestyle. The opportunity still exists for residents to not separate their recyclables and compostables, but instead to put them into the garbage stream. It is uncertain how effective System 5 will be in apartment buildings. In addition, System 5 is likely to have greater potential effects on special/sensitive groups (e.g., elderly and disabled) due to the requirement for all people to use 90 gallon bins for their waste and separated materials.

System 1 was ranked lowest. Although it is the most convenient system, it has the least potential for lifestyle change and for employment and economic development in the short and long term.

### *Distribution of Social Costs and Benefits*

Potential distributional effects were predicted to occur as a result of lifestyle changes on some groups in the region and on future generations. System 4 (Expanded Blue Box) was determined to be the highest ranked due to its overall positive current and future generation effects. It provides 3Rs service to more people than Systems 1, 2 and 3 and provides more equitable distribution of 3Rs services among housing types by providing composting opportunities to multi-family households. It continues the growth in changes to 3Rs lifestyle/behaviour that should have greater benefit to future generations than Systems 1, 2, and 3 and has fewer negative distribution effects than Systems 5, and 6 over the planning period due to fewer facilities being required.

Systems 2 (Existing/Committed) and 3 (Direct Cost) were ranked equally as the second highest. System 2 has the second least negative distribution effect from facilities and provides 3Rs service to a greater proportion of households than System 1 and is feasible in high density areas. System 3 improves the distribution of 3Rs service over Systems 1 and 2 by providing the opportunity to participate in 3Rs activities to a higher proportion of households, but it provides a lower distribution of service than System 5, because it will only apply to about 18% of multi-family households. System 3 has the potential for an increased financial burden for large households. This system also has the second least negative distributional effects from facilities.

Systems 5 (Wet/Dry) and 6 (Mixed Waste Processing) were ranked equally as the third highest based on the uncertainties associated with the significance and magnitude of the different potential effects of the systems. System 5 has a greater potential for negative distributional effects from new facilities than Systems 1, 2, 3 and 4. System 6 has the greatest potential for negative distributional effects from facilities. The magnitude of effect on future generations by both systems may be improved over other systems because of greater recycling; however, there is a concern that System 6, and to a lesser extent System 5, may allow residents to not source separate and that a wet/dry system in apartment buildings will be negatively received, with long term negative perceptions to 3Rs activities. System 6 however appears suitable to apartment buildings.

System 1 (Existing) was ranked the lowest because it is likely to have the lowest positive distribution effects on future generations by not encouraging as significant

a change in the lifestyle of the current generation toward greater personal involvement of residents in the management of their wastes. It also does not provide as great an improvement in the distribution of 3Rs service to residents as the other systems do. However, it does have the least negative distribution effects due to facilities.

### ***Overall System Ranking***

By considering the systems ranking by criteria and the criteria rankings (noting that all criteria were ranked equally), an overall system ranking was completed for the Social Environment Criteria Group based on a qualitative evaluation. The evaluation considered trade-offs among the rankings for each system and criterion recognizing that there may be significant potential effects from the 3Rs systems and the potential effects for each criterion may occur throughout the life of the system and some may continue beyond the planning period. The overall rankings are provided at the top of Table 4.4.

System 4 (Expanded Blue Box) was ranked highest overall. It was ranked highest for the criteria of Potential for Broad Social Impact and Distribution of Social Costs and Benefits and second highest for the Potential Local Community Impacts.

Systems 2 (Existing/Committed) and 3 (Direct Cost) were ranked second highest overall based on their second ranking in all three criteria.

System 5 (Wet/Dry) was ranked third highest on the basis that it was second highest for the Distribution of Social Costs and Benefits and third highest system for Broad Social Impact criterion. It ranked as the second lowest for Potential Local Community Impact. These rankings, overall, provided input to a ranking of System 5 higher than either System 1 (Existing) or 6 (Mixed Waste Processing).

System 1 (Existing) was ranked as the second lowest primarily because it ranked as the lowest for the Broad Social Impact and Distribution of Social Costs and Benefits with this disadvantage being off-set by a ranking of highest for Potential Local Community Impact.

System 6 (Mixed Waste Processing) was ranked lowest because it was ranked as lowest for Local Community Impact, second lowest for Broad Social Impact and third highest for Distribution of Social Costs and Benefits. In comparison to the other systems, System 6 was more consistently ranked lower.



#### 4.3.2.2 Social Acceptability

The social acceptability of each system was evaluated on the basis of the potential effects of the systems on participation, attitudes and perceptions of 3Rs activities and willingness to pay for the system (see Table 4.5). Based on these indicators, System 4 (Expanded Blue Box) was identified as the highest ranked because residents and municipalities are familiar with the system components and the infrastructure and can be expected to respond more quickly and more positively to the system. System 4 appears to be more suitable to the broad range of housing density patterns in Metro than either Systems 3 or 5, equal to System 6 and more comprehensive than either Systems 1 or 2 (see Table 4.5). Therefore, System 4 should lead to increased participation, improved attitudes and perceptions and a willingness to pay.

System 3 was ranked the second highest because it has greater potential for positive attitudes and participation than Systems 1, 2 and possibly 5 and 6. There is likely to be some initial negative attitudes associated with System 3 (Direct Cost); however, with the choice of the appropriate direct cost option (e.g., pay for each bag, two bags free, or reduced taxes) through public consultation, these negative concerns should be reduced in the long term. The implementation of System 3 (Direct Cost) in high-rise apartments may be ineffective in increasing participation beyond that of System 2 (Existing/Committed). Because the Direct Cost System may increase participation in low-density areas of Metro over the Existing/Committed System, it ranks higher, although the difference between the two systems is not great.

System 2 (Existing/Committed) was ranked the third highest because it supports current 3Rs behaviours, and may encourage additional positive attitudes and perceptions. Costs of this system are acceptable to residents and municipalities if current subsidies continue.

System 5 (Wet/Dry) was ranked the third highest. In the low-density areas of Metropolitan Toronto, this system may be acceptable with strong participation and some increase in positive attitudes, although with some concerns about the convenience of the system. In Metro's high-density areas this system may meet negative attitudes and concerns about costs and low participation rates. The concerns are likely to focus primarily on the health, odour and nuisance effects of the "wet" stream, and how it is collected and managed in highrise apartments. Apartment owners, managers and tenants may be concerned about this system. Municipalities and residents may be concerned about the costs of this system.

System 1 (Existing) was ranked the second lowest. This system will only maintain or lead to a small increase in participation and positive attitudes and perceptions. Costs

are acceptable to residents and municipalities if current subsidies continue.

System 6 (Mixed Waste Processing) was ranked the lowest. Due to the potential odour effects, there is likely to be significant opposition to a mixed solid waste composting and sorting facility. While the components of this system are available to all households (equal to Expanded Blue Box) and it encourages 3Rs involvement, there is the potential for the system to deter many people from source separating. The convenience of disposing of all waste, knowing that it will be separated elsewhere, may prompt residents to stop separating their waste. Furthermore, residents and municipalities may be unwilling to pay for the higher costs of this system.



TABLE 4.4

**METRO TORONTO  
NET EFFECTS SUMMARY FOR SOCIAL ENVIRONMENT**

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
<b>IMPACT</b>						
<b>Social</b>	Second lowest ranked	Second highest ranked	Second highest ranked	Highest ranked	Third highest ranked	Lowest ranked
Potential Local Community Impacts	Highest ranked due to: no new facilities required potential effects are due to increased use of existing facilities	Second highest ranked due to: systems 2,3,4 and 5 have the same facilities; potential for displacement and disruption effects due to expanded use of existing facilities and the MRFs, centralized composting facility and one recycling facility	Second highest ranked due to: systems 2,3,4 and 5 have the same facilities; potential for displacement and disruption effects due to expanded use of existing facilities and the MRFs, centralized composting facility and one recycling facility	Second highest due to: systems 2,3,4 and 5 have the same facilities; potential for displacement and disruption effects due to expanded use of existing facilities and the MRFs, centralized composting facility and one recycling facility	Second lowest ranked due to: systems 2,3,4 and 5 have the same facilities; potential for displacement and disruption effects due to expanded use of existing facilities and the MRFs, centralized composting facility and one recycling facility	Lowest ranked due to: greatest potential for displacement and disruption of residents, community features and disruption of community due to new mixed waste processing and composting facility

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential Local Community Impacts		<p>potential effects are likely less significant than systems 5 and 6, but more than 1</p>	<p>potential effects are likely less significant than systems 5 and 6, but more than 1</p> <p>potential for effects from illegal dumping by residents (magnitude uncertain)</p>	<p>potential effects are likely less significant than systems 5 and 6, but more than 1</p>	<p>potential displacement and disruption may be more significant than systems 1 - 4, but less than system 6 due to additional volumes of material and food waste</p> <p>potential health concerns associated with centralized composting for wet stream</p>	<p>potential for health concerns associated with processing and composting facility</p>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential for Broad Social Impact	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>unlikely to maximize potential for lifestyle change</li> <li>limited potential for additional employment and economic development in the short or long term</li> <li>most convenient system for residents (with system 2)</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential to increase but not maximize the potential for lifestyle change</li> <li>potential for some additional employment and economic development in the short and long term</li> <li>slightly less convenient for residents than system 1</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potentially fosters greater awareness of benefit of 3Rs and should encourage change to more sustainable lifestyle</li> <li>some potential additional employment and economic development in the short and long term</li> <li>potential increase in illegal disposal by households</li> <li>potentially less convenient than systems 1 and 2.</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for residents to participate more effectively in source separation than other systems due to familiarity</li> <li>potentially will increase but not maximize the potential for lifestyle change</li> <li>potential for additional employment and economic development in the short and long term</li> <li>greater inconvenience than system 1, 2 (considered low effect)</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for increased economic development with more reliable supply of materials for recycling industries with less contamination than mixed waste</li> <li>uncertain if the system will maximize positive lifestyle change (could reduce the participation in source separation)</li> <li>potential for greater inconvenience than system 1, 2, 3 and 4.</li> <li>Variety of lifestyle inconveniences associated with larger bins.</li> <li>appears to be difficult to implement in high density households.</li> <li>potential inconveniences for elderly and disabled with wet/dry bins</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for increased economic development with more reliable supply of materials for recycling industries</li> <li>however potential for greater contamination of the recyclable and compost streams than the other systems</li> <li>unlikely to maximize positive lifestyle change</li> <li>may reduce the amount of household source separation</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Distribution of Social Costs and Benefits	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potentially least positive effect on future generations</li> <li>least positive effect on distribution between household types</li> <li>least negative distribution effects due to facilities</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potentially second least positive effect on future generations</li> <li>potentially more equitable distribution of 3Rs services between housing types than system 1, but less than systems 3 - 6.</li> <li>*potentially second least negative distribution effects due to facilities</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential increased financial burden for large households</li> <li>potential for positive benefit to future generations, magnitude uncertain but should have greater benefit than systems 1 and 2 (depends on amount and effects of illegal dumping)</li> <li>second least negative distribution effects due to expanded use of facilities</li> <li>application to multi-family household uncertain (system assumes only 40% affected)</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>potentially positive distributional effects for current and next generation with continuing growth in changes to 3Rs lifestyle/behaviour and current generation and individuals taking greater responsibility for managing their resources</li> <li>more equitable distribution of 3Rs opportunities among housing types</li> <li>second least negative distribution effects due to facilities</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>more significant negative distribution effects due to facilities</li> <li>potential for significant benefit to future generation from higher volumes of waste diverted but may have negative effect on future 3Rs behaviour</li> <li>improved distribution effects by providing 3Rs service to more people than systems 1, 2 and 3</li> <li>uncertain of the application to multi-family</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>improved distribution effects by providing 3Rs service to more people than systems 1, 2 and 3</li> <li>most significant negative distribution effects due to facilities</li> <li>potential for benefit to future generation from highest volumes of waste diverted but may have negative effect on future 3Rs behaviour from reduced participation in source separation</li> </ul>

TABLE 4.5

### METRO TORONTO NET EFFECTS SUMMARY FOR SOCIAL ACCEPTABILITY

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Service						
Social Acceptability	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>Maintain or small positive increase in 3Rs behaviour.</li> <li>No changes to the system; residents are familiar with it</li> <li>Not likely to encourage greater individual action</li> <li>Costs acceptable to residents and municipalities if current subsidies continue</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>Positive increase in 3Rs behaviour</li> <li>Minor changes to the system; residents are familiar with it</li> <li>Likely to encourage greater individual action</li> <li>Costs acceptable to residents and municipalities if current subsidies continue</li> <li>Suitable to high density housing</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential to encourage greater participation by individuals in 3Rs</li> <li>Potential for controversy for some municipalities; potential reduced if education and consultation program implemented and appropriate direct cost options selected</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>Level of participation in composting and recycling in multi-family households is uncertain</li> <li>Residents and municipalities are familiar with and accepting of the system and the infrastructure is in place</li> </ul>	<p>Third lowest ranked due to:</p> <ul style="list-style-type: none"> <li>Acceptance of most components of the system</li> <li>Suitable for low density areas of Metro</li> <li>Acceptability of the system may be affected by odour, health and vermin effects from food waste composting facilities</li> <li>Residents may not separate high proportion of food waste, particularly in winter</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential for processing and composting facility operation to be unacceptable.</li> <li>System does not encourage source separation; could reduce participation in blue box and household composting</li> <li>Residents and municipalities may be unlikely/ unable to pay for the high capital costs</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Social Acceptability			<p>Difficult to implement direct cost and composting in high density housing and unlikely to significantly increase participation in high rises</p>	<p>Costs are acceptable if current level of subsidies continue. If subsidies do not continue municipal costs may not be acceptable and service may be reduced, reducing the effectiveness of the system</p>	<p>Potential for contamination of recycle and compost streams because people are unwilling, unable or lack knowledge to source separate properly</p> <p>Potential for a variety of inconveniences which may reduce its popularity</p> <p>Uncertain of application of wet/dry system in multi-family</p> <p>Attaining high levels of participation difficult for elderly, disabled, multi-family households, and in the initial phase some language groups</p>	<p>Potential for higher contamination of recyclables than the other systems because people are unable, unwilling or lack knowledge to source separate properly.</p>



### **4.3.3 York Region**

#### **4.3.3.1 Social Impact Criteria**

##### ***Potential Local Community Impacts***

Potential Local Community Impacts can be anticipated as a result of siting new 3Rs facilities and due to expansion and increased use of existing facilities and non-optimal operating conditions. System 1 (Existing) has all of the necessary facilities in place while the other systems require expansion of or new facilities. As a result, System 1 was ranked the highest. The potential effects of expanded use of existing facilities were taken to be the same for Systems 1, 2, 3 and 4.

Systems 2 (Existing/Committed), 3 (Direct Cost) and 4 (Expanded Blue Box) were ranked the second highest because, with the exception of depots for System 4, they all require the same new facilities. Although System 4 (Expanded Blue Box) has the potential for social effects from construction and operation of depots, the significance of the effect is uncertain. Therefore, similar potential effects are assumed. Although there is the potential for social effects from illegal dumping to occur with System 3, the significance of the effects is uncertain.

The difference in potential effect of Systems 2, 3, and 4 compared to System 5 is likely to be small. System 5 (Wet/Dry) was ranked the second lowest because of the likely addition of another MRF, the potential for greater odour effects associated with the "wet" waste at the composting facility and the increased volume of food wastes expected to be collected and composted. These additions may result in additional nuisance effects on residents and special/sensitive groups due to increased traffic etc., and additional odour effects and health concerns.

System 6 (Mixed Waste Processing) was ranked the lowest because the impacts on residents, special/sensitive groups, community features and businesses and the community associated with a mixed waste processing and composting facility are expected to be more significant than the effects of MRF and composting facilities of Systems 2, 3, 4, and 5.

##### ***Potential for Broad Social Impact***

The systems were evaluated based on their potential positive and negative social effects on the Region's broad social environment in terms of the lifestyle of people, and the employment and economic development opportunities in the region over the planning period. System 4 (Expanded Blue Box) was the highest ranked because it

provides the potential for residents to continue to change their lifestyle in a way that is familiar to them while encouraging separation of a greater number of materials, more frequently and with less error than the other systems. It is easily implemented and suitable to the low density character of York Region. Systems 3, 5, and 6 have a greater potential for faulty source separation, both deliberate and inadvertent. Systems 1 and 2 do not provide as much source separation opportunity to as great a number of people. System 4 also has greater potential for additional employment and economic development than Systems 1 and 2 (and likely similar to System 3) due to a more reliable supply of materials for recycling and "green" industries.

Systems 3 (Direct Cost) and 5 (Wet/Dry) were ranked second highest systems. System 3 should encourage additional change to a lifestyle that incorporates higher levels of personal involvement by residents in the management of their wastes. In System 3, there is a greater potential for some residents to engage in illegal dumping to reduce the amount of waste for which they have to pay collection costs. This disadvantage is off-set by the potential to provide greater incentive to practice 3Rs than System 5.

While both Systems 3 and 5 will increase the opportunities for employment and economic development over Systems 1 and 2, System 5 can be expected to have greater benefit by providing a more reliable supply of material to recycling and green industries with less contamination than System 6 (Mixed Waste Processing). However, it is uncertain whether the system will achieve a change in lifestyle in the region that incorporates personal involvement in the management of waste. The opportunity still exists for residents not to separate their recyclables and compostables, but instead to put them into the garbage stream. In addition, System 5 (Wet/Dry) is likely to have greater potential effects on special/sensitive groups (e.g., elderly and disabled) due to the requirement for all people to use 90 gallon bins for their waste and separated materials. The effectiveness of both systems in apartment buildings is uncertain. In addition, there is uncertainty of the application of system 5 to rural areas which make up about 20 % of residents.

Systems 6 (Mixed Waste Processing) was ranked second lowest. System 6 has the greatest potential for employment and economic development through the supply of greater volumes of material for industries, but it may reduce the participation of residents in source separation and may not support further development of the 3Rs.

System 1 (Existing) was ranked the lowest because it has the potential for only a small positive increase in employment and economic development opportunities, and limited support for a change in lifestyle to more personal involvement of residents in managing their wastes. It is, however, the most convenient system for residents.

### *Distribution of Social Costs and Benefits*

Potential distributional effects were predicted to occur as a result of lifestyle changes on some groups in the region and on future generations. System 4 (Expanded Blue Box) was ranked the highest due to its overall positive effects on current and future generations. It provides 3Rs service to more people than Systems 1, 2 and 3. It continues the growth in changes to 3Rs lifestyle/behaviour that should have greater benefit to future generations than Systems 1, 2, and 3, and has fewer negative distribution effects than Systems 5 and 6 during the planning period due to fewer facilities being required.

Systems 3 (Direct Cost) and 5 (Wet/Dry) were ranked equally as the second highest. System 3 improves the distribution of 3Rs service over Systems 1 and 2 by providing the opportunity to participate in 3Rs activities to a higher proportion of households, but it provides a lower distribution of service than System 5. System 3 has potential for an increased financial burden for large households. System 5 has a somewhat greater potential for negative distributional effects of new facilities than Systems 1, 2, 3 and 4. For both systems the magnitude of effect on future generations is uncertain, but is likely to have greater potential for positive effect than Systems 1, 2 and 6.

Systems 2 (Existing/Committed), and 6 (Mixed Waste Processing) were ranked equally as the second lowest based on the uncertainties associated with the significance and magnitude of the different potential effects of the systems. System 2 has the second least positive effect on future generations. It is ranked lower than System 6 because of its limited distribution of 3Rs service. For System 6, there is the uncertainty of the benefit to future generations through the diversion of more material from landfills with the possibility of influencing behaviour away from the 3Rs. System 2 also has less potential for positive effect on future generations. System 6 has potentially the most significant negative facility distributional effect on some residents from the operation of the mixed waste processing and composting facility while the majority of the regional residents are unaffected by the facility's operation.

System 1 (Existing) was ranked the lowest because it is likely to have the lowest positive distribution effects on future generations by not encouraging as significant a change in the lifestyle of the current generation toward greater personal involvement of residents in the management of their wastes. It also does not provide as great an improvement in the distribution of 3Rs service to residents as the other systems but it has the least negative distribution effects due to facilities.

### **Overall System Ranking**

By considering the systems ranking by criteria and the criteria rankings (noting that all criteria are ranked equally), an overall system ranking can be completed for the Social Environment Criteria Group based on a qualitative evaluation. The evaluation considered trade-offs among the rankings for each system and criterion recognizing that there may be significant potential effects from the 3Rs systems and the potential effects for each criterion may occur throughout the life of the system and some may continue beyond the planning period. The overall rankings are provided at the top of Table 4.6.

System 4 (Expanded Blue Box) was ranked as the highest system overall. It was ranked the highest for the criteria of Potential for Broad Social Impact and Distribution of Social Costs and Benefits and second highest for the Potential Local Community Impacts.

System 3 (Direct Cost) was ranked second highest overall based on its second highest ranking for all three criteria.

System 5 (Wet/Dry) was ranked third highest on the basis that it was the second highest for the Distribution of Social Costs and Benefits and for Broad Social Impact criteria. It ranked as the second lowest for Potential Local Community Impact. The only significant difference between System 5 and 3 is that for Potential Local Community Impact, System 5 has the additional effects of a new MRF and odour and nuisance effects associated with "wet" waste.

System 2 (Existing/Committed) was ranked the second lowest on the basis that it was ranked equal to System 6 (Mixed Waste Processing) for Potential for Broad Social Impact and Distribution of Social Costs and Benefits, but that it was ranked much higher for Potential Local Community Impact.

Systems 1 (Existing) and 6 (Mixed Waste Processing) were ranked the lowest. Due to some of the uncertainties involved in the analysis for each criterion, a judgement could not be made on which of the two systems was better than the other. System 1 ranked as the lowest for the Broad Social Impact and Distribution of Social Costs and Benefits with this disadvantage being off-set by the highest ranking for Potential Local Community Impact. System 6 was ranked the lowest for Potential Local Community Impacts and second lowest for both Potential for Broad Social Impact and Distribution of Social Costs and Benefits.



#### 4.3.3.2 Social Acceptability

The social acceptability of each system was evaluated on the basis of the potential effects of the systems on participation, attitudes and perception of 3Rs activities and willingness to pay for the system (see Table 4.7). Based on these indicators, System 4 (Expanded Blue Box) was ranked the highest because residents and municipalities are familiar with the system components and the infrastructure and can be expected to respond more quickly and more positively to the system. System 4 is also suitable for the low density areas of York. In addition, all apartment buildings of more than 6 units will be provided with recycling service, providing an improved level of service to these residents likely encouraging greater participation. Costs are acceptable, assuming current levels of subsidies continue.

System 3 (Direct Cost) was ranked the second highest because it has the potential to encourage greater participation in 3Rs than systems 1 (Existing) or 2 (Existing/Committed), the costs appear to be acceptable and it is suitable for low density urban and rural areas of York (all rural residents have "curbside" collection of garbage). It may be difficult to implement in apartment buildings (about 11.0 %) of the households. System 3 has the advantage over System 2 of potentially encouraging greater participation by individuals and greater behavioural change to support 3Rs. However, it may be controversial in some municipalities and there may be initial opposition from residents. An effective education and public consultation program may be required to identify and address the public concerns related to System 3 (Direct Cost). Through the consultation program the best approach for the Region may be identified, including a corresponding reduction in taxes or a charge for extra bags per household.

Systems 1, 2 and 5 were ranked as the third highest. Systems 1 and 2 support the current 3Rs behaviour, people are familiar with these systems, and they are unlikely to encourage greater individual or municipal behaviour to reduce, reuse or recycle their waste. Reduction and reuse are not emphasized to the same extent as in other systems. In addition, although these systems have a cost acceptability advantage over System 6, the cost for Systems 2, 3, 4 and 5 appear to be equally acceptable.

System 5 (Wet/Dry) is more broadly based and has slightly more potential for greater participation. It has an advantage over Systems 1, 2 and 6 because it has greater potential to encourage stronger positive attitudes and behaviour toward the 3Rs. The acceptability of System 5 could be reduced due to odour and vermin effects from the volumes of food waste being composted at the composting facility. There is also increased potential for some groups to participate less due to greater difficulty in using the 90 gallon bins (e.g., elderly and disabled) and for others not to separate

food waste (due to the messiness and inconveniences associated with the bins and cleaning them). In addition, the effectiveness of the Wet/Dry system in rural areas, representing about 20% of the population, is uncertain. At the higher cost for System 5, it may be less acceptable as residents and municipalities may be unwilling to pay the higher costs for the system.

System 6 (Mixed Waste Processing) was ranked the lowest because the costs for the mixed waste processing and composting facility are likely to be unacceptable to residents and municipalities; it does not encourage source separation and could reduce individual participation in some of the components of the system (e.g., Blue Box); and, the mixed waste processing and composting facility operation is unlikely to continue to operate due to odour problems.



TABLE 4.6  
YORK REGION  
NET EFFECTS SUMMARY FOR SOCIAL ENVIRONMENT

Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
<b>IMPACT</b>						
<b>Social</b>	Lowest ranked	Second lowest ranked	Second highest ranked	Highest ranked	Third highest ranked	Lowest ranked
Potential Local Community Impacts	Highest ranked due to: no new facilities required potential effects are due to increased use of existing facilities	Second highest ranked due to: systems 2 and 3 have the same facilities; potential for displacement and disruption effects due to expanded use of existing facilities and two new central composting facilities and 1 new MRF	Second highest ranked due to: systems 2 and 3 have the same facilities; potential for displacement and disruption effects due to expanded use of existing facilities two new central composting facilities and 1 new MRF	Second highest ranked due to: potential for increased displacement and disruption effects due to expanded use of existing facilities, expansion of new MRF and the addition of depots.	Second lowest ranked due to: potential for increased displacement and disruption effects due to expanded use of existing facilities (increased volumes), construction and operation of the expanded MRF and the additional depots. potential displacement and disruption effects may be more significant than systems 1, 2, 3, and 4	Lowest ranked due to: greatest potential for displacement and disruption of residents, community features and disruption of community due to new mixed waste processing and composting facility potential for health concerns associated with processing and composting facility

Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential Local Community Impacts		<ul style="list-style-type: none"> <li>potential for fewer people to be adversely affected than in systems 5 and 6</li> <li>potential effects are likely less significant than systems 5 and 6</li> </ul>	<ul style="list-style-type: none"> <li>potential for fewer people to be adversely affected than in systems 5 and 6</li> <li>potential for effects from illegal dumping/burning (magnitude uncertain)</li> </ul>	<ul style="list-style-type: none"> <li>potential for less displacement and disruption effects than systems 5 and 6 but more than system 1, 2 and 3</li> </ul>	<ul style="list-style-type: none"> <li>potential health concerns associated with centralized composting for wet stream.</li> </ul>	

Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential for Broad Social Impact	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>unlikely to maximize potential for lifestyle change</li> <li>limited additional employment and economic development in the short or long term</li> <li>most convenient system for residents</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potential to increase but not maximize the potential for lifestyle change</li> <li>potential for some additional employment and economic development in the short and long term</li> <li>potentially less convenient for residents than system 1</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>fosters greater awareness of benefit of 3Rs and should encourage change to more sustainable lifestyle</li> <li>some additional employment and economic development in the short and long term</li> <li>potential increase in illegal disposal and incineration by households</li> <li>potentially less convenient than systems 1 and 2.</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for residents to participate more effectively in source separation than other systems due to familiarity</li> <li>will increase but not maximize the potential for lifestyle change</li> <li>potential for additional employment and economic development in the short and long term</li> <li>potential for greater inconvenience than system 1,2,3 (considered low effect)</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for increased economic development with more reliable supply of materials for recycling industries with less contamination than mixed waste</li> <li>uncertain if the system will maximize positive lifestyle change (could reduce the participation in source separation); but appears appropriate for the high proportion of single family dwellings.</li> <li>potential for greater inconvenience than system 1, 2, 3 and 4.</li> <li>Variety of lifestyle inconveniences associated with larger bins</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for increased economic development with more reliable supply of materials for recycling industries however potential for greater contamination of the recyclable and compost streams than the other systems</li> <li>unlikely to maximize positive lifestyle change</li> <li>may reduce the amount of household source separation</li> <li>potential for greater inconvenience than systems 1, 2, and 3, if residents participate fully</li> </ul>

Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Distribution of Social Costs and Benefits	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>least positive effect on future generations</li> <li>least positive effect on distribution between household types</li> <li>least negative distribution effects due to facilities</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>second least positive effect on future generations</li> <li>more equitable distribution of 3Rs services between housing types than system 1 but less than system 3, 4, 5 and 6</li> <li>second least negative distribution effects due to facilities</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential increased financial burden for large households</li> <li>potential for positive benefit to future generations</li> <li>Magnitude uncertain but should have greater benefit than systems 1 and 2 (depends on effects of illegal dumping)</li> <li>third least negative distribution effects, due to expanded use of facilities</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>improved distribution effects by providing improved 3Rs service over system 1, 2 and 3</li> <li>third least negative distribution effects due to expanded use of facilities.</li> <li>positive distributional effects for current and next generation with continuing growth in changes to 3Rs lifestyle /behaviour and current generation and individuals taking greater responsibility for managing their resources</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>more significant negative distribution effects than system 1, 2, 3, and 4 due to facilities</li> <li>potential for significant benefit to future generations from higher volumes of waste diverted but may have negative effect on future 3Rs behaviour</li> <li>improved distribution effects by providing more improved 3Rs service than systems 1, 2 and 3.</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>improved distribution effects by providing 3Rs service to more people than systems 1, 2 and 3</li> <li>most significant negative distribution effects due to facilities</li> <li>potential for benefit to future generation from highest volumes of waste diverted but may have negative effect on future 3Rs behaviour from reduced participation in source separation participation</li> </ul>

**TABLE 4.7**  
**YORK REGION**  
**NET EFFECTS SUMMARY FOR SOCIAL ACCEPTABILITY**

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Service						
Social Acceptability	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>Maintain or small positive increase in 3Rs behaviour.</li> <li>No changes to the system;</li> <li>residents are familiar with it</li> <li>encourage greater individual action</li> <li>Costs acceptable to residents and municipalities if current subsidies continue</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential for only small positive increase in 3Rs behaviour</li> <li>No changes to the system for households except for the addition of apartment recycling; residents are familiar with it</li> <li>Not likely to encourage greater individual action</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential to encourage greater participation by individuals by source separating more materials for recycling and composting and with more households provided with composters</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>Residents and municipalities are familiar with the system;</li> <li>infrastructure is in place</li> <li>Suitable to the low density character; education program would be targeted to different language or cultural groups</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>Suitable for the low density urban areas of York</li> <li>Ethnic homogeneity suggests efficient education/promotion program</li> <li>Potential for less contamination of recyclables than mixed waste processing</li> <li>Application to and acceptance in apartments and rural areas</li> <li>uncertain (about 20% of population)</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential for processing and composting facility operation to be unacceptable.</li> <li>System does not encourage source separation; could reduce participation in blue box and household composting</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Social Acceptability (Cont'd)	<ul style="list-style-type: none"> <li>Reduction and reuse not emphasized to the same extent as other systems</li> </ul>	<ul style="list-style-type: none"> <li>Costs acceptable to residents and municipalities if current subsidies continue</li> <li>Reduction and reuse are not emphasized to the same extent as other systems</li> </ul>	<ul style="list-style-type: none"> <li>Potential for controversy for some municipalities in the short term; potential for controversy reduced if education and consultation program is implemented and appropriate direct cost options selected</li> <li>Difficult to implement direct cost and composting in high density housing; unlikely to significantly increase participation in high rises (represent a low proportion of households in York)</li> <li>Potential for illegal dumping</li> </ul>	<ul style="list-style-type: none"> <li>Costs are acceptable if current level of subsidies continue. If not, municipal costs may not be acceptable and service may be reduced, decreasing the effectiveness of the system</li> </ul>	<ul style="list-style-type: none"> <li>Potential for reduced acceptability due to potential nuisance effects from large volumes of food waste at the composting facility</li> <li>Potential for reduced participation by some groups due to greater difficulty using 90 gal. bins and greater inconveniences (e.g. elderly and rural residents)</li> <li>Residents may not separate high proportion of food waste, particularly in winter</li> <li>At the higher costs residents and municipalities may be unwilling or unable to pay for the system in</li> </ul>	<ul style="list-style-type: none"> <li>Residents and municipalities may be unwilling or unable to pay for the high capital costs</li> <li>Potential for higher contamination of recyclables than the other systems may reduce the usability of the recyclables</li> </ul>



#### **4.3.4 Peel Region**

##### **4.3.4.1 Social Impact Criteria**

###### ***Potential Local Community Impacts***

Potential Local Community Impacts can be anticipated as a result of siting new 3Rs facilities and due to expansion and increased use of existing facilities and non-optimal operating conditions. The potential effects of expanded use of existing facilities were taken to be the same for systems 1, 2, 3 and 4. System 1 (Existing) has all of the necessary facilities in place while the other systems require expansion of or new facilities. As a result, System 1 was ranked the highest.

Systems 2 (Existing/Committed), 3 (Direct Cost) and 4 (Expanded Blue Box) were ranked the second highest because they all require the same new facilities (Peel Region has planned for most of the facilities required for these systems.) Therefore, similar potential effects are expected. Although there is the potential for social effects from illegal dumping to occur with System 3, the significance of the effects is uncertain. With both Systems 3 and 4 there is likely to be an increased flow of materials, with the potential for additional nuisance effects. Due to the uncertainties of the additional volumes and the potential effects, the systems were ranked equal to System 2.

The difference in potential effect of Systems 2, 3, and 4 compared to system 5 is likely to be small. System 5 was ranked second lowest because of the potential for greater odour effects associated with the composting facility and the increased volume of food wastes expected to be collected and composted. This may result in additional effects on residents and special/sensitive groups due to additional odour effects, health concerns and traffic related effects.

System 6 (Mixed Waste Processing) was ranked the lowest because the impacts on residents, special/sensitive groups, community features and businesses and the community associated with a mixed waste processing and composting facility are expected to be more significant than the effects of the MRF and composting facilities of Systems 2, 3, 4, and 5. Most of these types of facilities in North America have been closed due to odour problems (RIS, 1993).

###### ***Potential for Broad Social Impact***

The systems were evaluated based on their potential positive and negative social impacts on the Region's broad social environment in terms of the lifestyle of people,

and the employment and economic development opportunities in the region over the planning period.

System 4 (Expanded Blue Box) was found to be the highest ranked because it provides the potential for residents to continue to change their lifestyle in a way that is familiar to them while encouraging separation of a greater number of materials, more frequently and with less error than the other systems. Systems 3, 5, and 6 have a greater potential for faulty source separation, both deliberate and inadvertent. Systems 1 and 2 do not provide as many source separation opportunities to as many people. System 4 also has greater potential for additional employment and economic development than Systems 1, 2, and 3 due to a more reliable supply of materials for recycling and "green" industries.

Systems 2 (Existing/Committed) and 3 (Direct Cost) were ranked second highest systems because they too should encourage additional change to a lifestyle that incorporates higher levels of personal involvement by residents in the management of their wastes and increases the opportunities for employment and economic development. However, in System 3 there is a greater potential for some residents to engage in illegal dumping and incineration to reduce the amount of waste for which they have to pay collection costs. This disadvantage is off-set by the potential to provide greater incentive to practice 3Rs than System 2.

System 5 (Wet/Dry) was ranked third highest because it has the potential to increase employment and economic development by providing a more reliable supply of material to recycling and green industries with less contamination than System 6 (Mixed Waste Processing). However, it is uncertain whether the system will achieve a change in lifestyle in the Region that incorporates personal involvement in the management of waste. The opportunity still exists for residents not to separate their recyclables and compostables, but instead to put them into the garbage stream. In addition, it is uncertain if the system can be implemented effectively in apartment buildings. System 5 introduces a number of lifestyle inconveniences associated with the 90 gallon bins and the required sorting and storage of food waste. It is also likely to have greater potential effects on special/sensitive groups (e.g., elderly and disabled) due to the requirement to use 90 gallon bins for their waste and separated materials. The significance of these inconveniences is uncertain.

Systems 1 (Existing) and 6 (Mixed Waste Processing) were ranked the lowest because the net change for these systems is considered less positive than for systems 2, 3, 4, and 5. System 1 has the potential for a small positive increase in employment and economic development opportunities, and limited support of a change in lifestyle to more personal involvement of residents in managing their wastes. System 6 has

greater potential for employment and economic development through the supply of greater volumes of material for industries than all of the other systems, but it may reduce the participation of residents in source separation and may not support further development of the 3Rs.

### *Distribution of Social Costs and Benefits*

Potential distributional effects were predicted to occur as a result of lifestyle changes on some groups in the region and on future generations. System 4 (Expanded Blue Box) was the highest ranked due to its overall positive current and future generation effects. It provides 3Rs service to more people than Systems 1 and 2, and provides more equitable distribution of 3Rs services among housing types by providing composting and recycling opportunities to multi-family households. It continues the growth in changes to 3Rs lifestyle/behaviour that should have greater benefit to future generations than Systems 1, 2, and 3, and has fewer negative distribution effects than Systems 5, and 6 in the short term due to fewer facilities being required.

Systems 3 (Direct Cost) was ranked as the second highest. It improves the distribution of 3Rs service over Systems 1 and 2 by providing the opportunity to participate in 3Rs activities to a higher proportion of households, but it provides a lower distribution of service than System 5. System 3 has potential for an increased financial burden for large households.

Systems 2 (Existing/Committed), 5 (Wet/Dry) and 6 (Mixed Waste Processing) were ranked equally as the second lowest based on the uncertainties associated with the significance and magnitude of the different potential effects of the systems. System 2 has the second least positive effect on future generations with some additional support over System 1 (Existing) for changes in lifestyle to encourage greater personal involvement by residents in the management of their waste. It has a small improvement in the provision of 3Rs service to a greater proportion of households than System 1, but has a small increase in negative distribution of effects due to facilities in comparison to System 1.

System 5 (Wet/Dry) has a greater potential for negative distributional effects of new facilities than Systems 1, 2, 3 and 4. For all 3 systems the magnitude of effect on future generations is uncertain.

System 6 (Mixed Waste Processing) has potentially the most significant negative distributional effects on some residents from the operation of the mixed waste processing and composting facility while the majority of the Regional residents are unaffected by the facility's operation. In addition, there is the uncertainty of the

benefit to future generations through the diversion of more material from landfills with the possibility of influencing behaviour away from the 3Rs. However, it improves the distribution of services over Systems 1 (Existing) and 2 (Existing/Committed).

System 1 (Existing) was ranked the lowest because it is likely to have the lowest positive distribution effects on future generations by not encouraging as much change in the lifestyle of the current generation toward greater personal involvement of residents in the management of their wastes. It also does not provide as great an improvement in the distribution of 3Rs service to residents as the other systems do but it has the least negative distribution effects due to facilities.

### ***Overall System Ranking***

By considering the systems ranking by criteria and the criteria rankings (noting that all criteria are ranked equally), an overall system ranking can be completed for the Social Environment Criteria Group based on a qualitative evaluation. The evaluation considered trade-offs among the rankings for each system and criterion recognizing that there may be significant potential effects from the 3Rs systems and the potential effects for each criterion may occur throughout the life of the system and some may continue beyond the planning period. The overall rankings are provided at the top of Table 4.8.

System 4 (Expanded Blue Box) was ranked the highest overall. It was ranked the highest for the criteria of Potential for Broad Social Impact and Distribution of Social Costs and Benefits and second highest for the Potential Local Community Impacts.

System 3 (Direct Cost) was ranked second highest overall based on its second highest ranking for all three criteria.

Systems 2 (Existing/Committed) and 5 (Wet/Dry) were ranked third highest on the basis that System 5 was second highest for the Distribution of Social Costs and Benefits and third highest system for Broad Social Impact criteria. It ranked as the second lowest for Potential Local Community Impact. These rankings, overall, provided input to a ranking of System 5 higher than systems 1, and 6. Although System 2 was ranked higher than System 5 for the Potential Local Community Impact and Potential for Broad Social Impact, they were ranked equal for Distribution of Social Costs and Benefits. Due to some of the uncertainties involved in the analysis for each criterion, a judgement could not be made on which of the two systems was better than the other.



System 1 (Existing) was ranked as the second lowest primarily because it ranked as the lowest for the Broad Social Impact and Distribution of Social Costs and Benefits. This disadvantage was off-set by the highest ranking for Potential Local Community Impact.

System 6 (Mixed Waste Processing) was ranked the lowest because it was ranked as the lowest for the Potential Local Community Impact, second lowest ranked for Broad Social Impact and third lowest ranked for Distribution of Social Costs and Benefits. In comparison to the other systems, System 6 was more consistently ranked lower than the other systems.

#### **4.3.4.2 Social Acceptability**

The social acceptability of each system was evaluated on the basis of the potential effects of the systems on participation, attitudes and perception of 3Rs activities and willingness to pay for the system (see Table 4.9). Based on these indicators, System 4 (Expanded Blue Box) was identified as the highest ranked system because residents and municipalities are familiar with the system components and can be expected to respond more quickly and more positively to the system. System 4 is also suitable for the low density areas of Peel. In addition, all apartment buildings of more than 6 units will be provided with recycling services, providing an improved level of service and likely encouraging greater participation. Costs are acceptable, assuming current levels of subsidies continue.

Systems 2 (Existing/Committed) and 3 (Direct Cost) were ranked the second highest because they both have the potential to encourage greater participation in 3Rs than System 1 (Existing), the costs are acceptable for both, and both are suitable for low density urban areas of Peel. Although System 3 may be difficult to implement in high density areas and may be controversial in some municipalities, it does have the advantage over System 2 of potentially encouraging greater participation by individuals and greater behavioural change to support 3Rs. Both systems are ranked higher than to Systems 1, 5 and 6 because they have greater potential to encourage stronger positive attitudes and behaviour toward the 3Rs.

System 5 (Wet/Dry) is ranked the third highest because, although the costs are of the same order of magnitude as Systems 2, 3 and 4, it is unlikely to increase participation by individuals in 3Rs activities as much as Systems 2, 3, and 4. The acceptability of the system could be reduced if the costs are higher and because of odour and vermin effects from the volumes of food waste at the composting facility. There is also increased potential for some groups to participate less due to greater difficulty in

using the 90 gallon bins (e.g, elderly and disabled) and for others not to separate food waste (due to the messiness and inconveniences associated with the bins and cleaning them). The application and acceptance of the system in apartments is uncertain.

System 1 (Existing) is ranked the second lowest because although it will maintain the current 3Rs behaviour and people are familiar with the system, it is unlikely to encourage greater individual or municipal behaviour to reduce, reuse or recycle their waste. In addition, although this system has a cost acceptability advantage over System 6, the cost for Systems 2, 3, 4 and 5 appear to be equally acceptable.

System 6 (Mixed Waste Processing) was ranked as the lowest because the mixed waste processing and composting facility operation is unlikely to continue to operate due to odour problems; it does not encourage source separation and could reduce individual participation in some of the components of the system (e.g., Blue Box); and, the costs for the mixed waste processing and composting facility are likely to be unacceptable to residents and municipalities. No distinction was made between Systems 6A and 6B.



**TABLE 4.8**  
**PEEL REGION**  
**NET EFFECT SUMMARY FOR SOCIAL ENVIRONMENT**

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
<b>IMPACT</b>						
<b>Social</b>	Second lowest ranked	Third highest ranked	Second highest ranked	Highest ranked	Third highest ranked	Lowest ranked
Potential Local Community Impacts	Highest ranked due to: no new facilities required potential effects are due to increased use of existing facilities	Second highest ranked due to: systems 2,3,4 and 5 have the same facilities; potential displacement and disruption effects are due to expanded use of existing facilities and one new centralized composting facility, one new MRF, community recycling centres and mini-recycling depots and drop-off facilities	Second highest ranked due to: systems 2,3,4 and 5 have the same facilities; potential displacement and disruption effects are due to expanded use of existing facilities and one new centralized composting facility, one new MRF, community recycling centres and mini-recycling depots and drop-off facilities	Second highest ranked due to: systems 2,3,4 and 5 have the same facilities; potential displacement and disruption effects are due to expanded use of existing facilities and one new centralized composting facility, one new MRF, community recycling centres and mini-recycling depots and drop-off facilities	Second lowest ranked due to: systems 2,3,4 and 5 have the same facilities however system 5 adds a leaf and yard waste composting facility; potential displacement effects are due to expanded use of existing facilities and the one new centralized composting facility, one new MRF, community recycling centres and mini-recycling depots and drop-off facilities	Lowest ranked due to: greatest potential for displacement and disruption of residents, community features and disruption of community due to new mixed waste processing and composting facility potential for health concerns associated with processing and composting facility

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential Local Community Impacts		<ul style="list-style-type: none"> <li>potential effects are likely less significant than systems 5 and 6</li> </ul>	<ul style="list-style-type: none"> <li>potential effects are likely less significant than systems 5 and 6</li> <li>potential for effects from illegal dumping/burning</li> </ul>	<ul style="list-style-type: none"> <li>potential effects are likely less significant than systems 5 and 6</li> </ul>	<ul style="list-style-type: none"> <li>potential displacement and disruption effects will likely be more significant than systems 2,3, and 4 but less than system 6.</li> <li>potential health concerns associated with centralized composting for wet stream</li> </ul>	

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Potential for Broad Social Impact	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>unlikely to maximize potential for lifestyle change</li> <li>limited potential for additional employment and economic development in the short or long term</li> <li>most convenient system for residents (with system 2)</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential to increase but not maximize the potential for lifestyle change</li> <li>potential for some additional employment and economic development in the short and long term</li> <li>most convenient system for residents (with system 1)</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential to foster greater awareness of benefit of 3Rs and should encourage change to more sustainable lifestyle</li> <li>potential for some additional employment and economic development in the short and long term</li> <li>potential increase in illegal disposal and incineration by households</li> <li>potentially less convenient than systems 1 or 2.</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for residents to participate more effectively in source separation than other systems due to familiarity</li> <li>likely to increase but not maximize the potential for lifestyle change</li> <li>potential for additional employment and economic development in the short and long term</li> <li>potential for greater inconvenience than system 1,2,3 (considered low effect)</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for increased economic development with more reliable supply of materials for recycling industries with less contamination than mixed waste</li> <li>uncertain if the system will maximize positive lifestyle change (could reduce the participation in source separation)</li> <li>potential for greater inconveniences than systems 1 - 4</li> <li>difficult to implement in high density households</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for increased economic development with more reliable supply of materials for recycling industries</li> <li>however potential for greater contamination of the recyclable and compost streams than the other systems</li> <li>unlikely to maximize positive lifestyle change</li> <li>may reduce the amount of household source separation</li> <li>potential for greater inconvenience than system 1, 2, and 3, if residents participate fully participate</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Distribution of Social Costs and Benefits	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>likely least positive effect on future generations due to least potential to influence 3Rs behaviour</li> <li>least positive effect on distribution between household types because some households are not provided with the same 3Rs opportunities</li> <li>least negative distribution effects due to facilities as no new facilities are required</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potentially second least positive effect on future generations</li> <li>more equitable distribution of 3Rs services between housing types than systems 1 and 2 but less than systems 3-6.</li> <li>2nd least negative distribution effects due to facilities</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential increased financial burden for large households</li> <li>potential for positive benefit to future generations</li> <li>uncertain (depends on amount and effects of illegal dumping)</li> <li>2nd least negative distribution effects due to facilities</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>improved distribution effects by providing 3Rs service to more people than systems 1, 2 and 3</li> <li>positive distributional effects for current and next generation with continuing growth in changes to 3Rs lifestyle /behaviour</li> <li>2nd least negative distribution effects due to facilities</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>more significant negative distribution effects due to facilities than systems 1 - 4</li> <li>potential for significant benefit to future generations from higher volumes of waste diverted, but may have a negative effect on future 3Rs behaviour</li> <li>improved distribution effects by providing 3Rs service to more people than systems 1, 2 and 3</li> </ul>	<p>Third lowest ranked due to:</p> <ul style="list-style-type: none"> <li>improved distribution effects by providing 3Rs service to more people than systems 1, 2 and 3</li> <li>potentially most significant negative distribution effects due to facilities</li> <li>potential for benefit to future generation from highest volumes of waste diverted but may have negative effect on future 3Rs behaviour from reduced participation in source separation</li> </ul>

**TABLE 4.9**  
**PEEL REGION**  
**NET EFFECTS SUMMARY FOR SOCIAL ACCEPTABILITY**

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Service						
Social Acceptability	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>Maintain or small positive increase in 3Rs behaviour.</li> <li>No changes to the system; residents are familiar with it</li> <li>Costs acceptable to residents and municipalities if current subsidies continue</li> <li>Not likely to encourage greater individual action</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>Positive increase in 3Rs behaviour</li> <li>Minor changes to the system; residents are familiar with it</li> <li>Costs acceptable to residents and municipalities if current subsidies continue</li> <li>Suitable for high density housing</li> <li>Likely to encourage greater individual action</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential to encourage greater participation by individuals in 3Rs by source separating more materials and with more households provided with composters than systems 1,2 and probably 6.</li> <li>Costs acceptable to residents and municipalities if current subsidies continue. Potential revenue gain to offset other waste management costs</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>Residents and municipalities are familiar with the system</li> <li>Costs are acceptable if current level of subsidies continue. If not, costs may not be acceptable and service may be reduced, reducing the effectiveness of the system</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>At the higher costs, residents and municipalities may be unwilling/unable to pay for the system.</li> <li>Application to and acceptance in apartments and rural areas uncertain</li> <li>Acceptability of the system may be affected by odour, health and vermin effects from food waste composting facilities and from food waste collection and storage in apartment buildings.</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>Potential for processing and composting facility to be unacceptable. Residents and municipalities may be unwilling/unable to pay the high capital costs</li> <li>Potential for higher contamination of recyclables than the other systems, may reduce the usability of the recyclables.</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Direct Cost	System 4 Expanded Blue Box	System 5 Wet/Dry	System 6 Mixed Waste Processing
Social Acceptability			<ul style="list-style-type: none"> <li>Potential for controversy for some municipalities in the short term.</li> <li>Potential for controversy reduced if education and consultation program implemented and appropriate direct cost options selected.</li> <li>Difficult to implement direct cost and composting in high density housing and unlikely to significantly increase participation in high rises (represent about 25% of the households)</li> <li>Potential for more illegal dumping than other systems.</li> </ul>	<ul style="list-style-type: none"> <li>Suitable for low, medium and high density areas</li> </ul>	<ul style="list-style-type: none"> <li>Residents may not separate high proportion of food waste, particularly in winter</li> <li>Potential for less contamination of recyclables than system 6</li> <li>Suitable for the low density areas of Peel</li> <li>At higher costs residents and municipalities may be unwilling/unable to pay for the system</li> </ul>	<ul style="list-style-type: none"> <li>System does not encourage source separation; could reduce participation in blue box and household composting</li> </ul>



#### **4.3.5 Industrial, Commercial and Institutional Sector**

##### ***Ranking of Systems by Criterion***

In order to determine ranking within the Social Criteria Group of the 3Rs systems for the IC&I sector in the GTA, the system alternatives were first ranked by criterion within the Social Criteria Group. The three system rankings were then used to identify the overall ranking for the Social Criteria Group.

The system rankings by criterion were based on the "system net effects by criteria" and "advantages/disadvantages by criteria" contained in the individual system summary net effects tables contained in the Schedule A. The system net effects were determined based on the successful application of mitigation/enhancement measures to the potential effect. The key "advantages/disadvantages" were listed for each criterion for each system in comparison to the other systems.

Net effects common to all systems were not carried forward to the evaluation of the system options because they do not assist in distinguishing between systems. Although the systems are named for the dominant element of the system (e.g., Expanded 3Rs Regulations) the evaluation was based on the entire system and all of its components as described in the GTA 3Rs Analysis EA Input Document. The system rankings for the three Social Environment Criteria are discussed below and summarized in Table 4.10.

##### **4.3.5.1 Social Impact Criteria**

###### ***Potential Local Community Impacts***

Potential Local Community Impacts can be anticipated as a result of siting new IC&I 3Rs facilities and due to the expansion and increased use of existing facilities and non-optimal operating conditions. The potential effects of expanded use of existing facilities were taken to be the same for Systems 1 (Existing) and 2 (Existing/Committed). Systems 1 and 2 have all the necessary facilities in place while the other systems require new facilities which have the potential to affect local communities. As a result, Systems 1 and 2 were ranked equally the highest.

Systems 3 (Extended 3Rs Regulations) and 4 (Expanded 3Rs Regulations) were ranked as the second highest because, while they both require new MRFs for the processing of dry materials, no new compost facilities are required. Therefore, the potential displacement and disruption effects may be greater than Systems 1 and 2

but less than for Systems 5 and 6.

System 5 (Expanded 3Rs with Organics Regulations) was ranked the second lowest because it requires new MRFs similar to Systems 3 and 4 and because of the need for more or expanded compost facilities, with the greater potential for odour effects from the "wet" waste that is associated with this System. These additions may result in additional nuisance effects on residents and special/sensitive groups due to additional odour effects, health concerns and increased traffic.

System 6 (Processing of all IC&I Waste )was ranked lowest because of the impacts associated with the new MRFs and composting facilities that will be required to process all IC&I materials in the GTA. Although similar to the effects from the facilities in System 5, these effects are expected to be greater than Systems 1, 2, 3, 4, and 5.

### ***Potential for Broad Social Impact***

The systems were evaluated based on their potential positive and negative social impacts on the Region's broad social environment in terms of the lifestyle of people, and the employment and economic development opportunities in the region over the planning period. The evaluation assumes that there will be strong market development for all systems.

System 2 (Existing/Committed) was ranked the highest because it applies primarily to the major IC&I operations; those which are best able to pay for the additional costs. It also will likely have the greatest potential to positively affect IC&I attitudes, perceptions and behaviour, because the regulations in this system have been incorporated as a part of normal operations into some institutions, businesses and industry. Over a longer period of time, other operators are likely to comply voluntarily with some of the regulations. However, it has the second least potential to develop economies of scale and employment and economic development opportunities in recycling industries because it will not provide as reliable a supply of materials for recycling and green industries as Systems 3, 4, 5 and 6.

Systems 3 (Extended 3Rs Regulations), 4 (Expanded 3Rs Regulations) and 5 (Processing of all IC&I Waste) were ranked equally as the second highest. While there are differences among them, these are not significant enough to rank one system ahead of the others. Systems 3 and 4 introduce fairly similar amounts of regulation on the IC&I sector. System 4 also has the second highest potential for developing economies of scale and employment and economic development

opportunities in recycling industries. The regulation placed on the IC&I sector in System 5 places additional requirements on the restaurant and grocery sectors with potentially negative financial and operational implications. This system also has the second least potential to positively affect IC&I attitudes and behaviour.

System 1 (Existing) was ranked the third highest because it has the least potential to develop employment and economic development opportunities in the waste management sector and in the recycling industries (i.e., least reliable supply of materials), and has the third least potential to positively affect IC&I attitudes, perceptions and behaviours.

System 6 (Processing of all IC&I Waste) was ranked the lowest. It has the greatest potential for employment and economic development opportunities through the supply of greater volumes of material for industries. However, it introduces the greatest amount of regulation on the IC&I sector and is likely to result in the greatest increase in costs and operational requirements to the largest number of IC&I generators.

#### *Distribution of Social Costs and Benefits*

Potential distributional effects were predicted to occur as a result of lifestyle changes on some groups and changes in corporate behaviour in the region and on future generations.

System 2 (Existing/Committed) was ranked the highest because it has the least potential for negative distribution effects from facilities and has the potential for positive effect on future generations due to changes in corporate and employee behaviour. It also has a positive distribution effect because the regulations are broadly based across different sectors but avoids small businesses which are least able to pay for the programs.

Systems 1 (Existing), 3 (Extended 3Rs Regulations) and 4 (Expanded 3Rs Regulations) were ranked equally as the second highest. System 1 has the least potential for negative distribution effects from facilities and the second most positive effect on distribution of regulation, but has the least potential positive effect for future generations as it does not appear that it will alter IC&I behaviour in the long term to the extent that the other systems will. Systems 3 and 4 have the third most potential for negative distribution effects from facilities, but also have the second most positive distribution effect. It is likely that they will have the same potential positive future generational effect.

Systems 5 (Expanded 3Rs with Organic Regulations) and 6 (Processing of all IC&I

Waste) were ranked equally as the lowest. System 6 is likely to have the most potential for negative distribution effects from facilities, but System 5 may have the least positive distribution effect from regulations. The potential for positive effect for future generations is uncertain.

### **Overall System Ranking**

By considering the systems ranking by criteria and the criteria rankings (noting that all criteria are ranked equally), an overall system ranking can be completed for the Social Environment Criteria Group on a qualitative basis. The evaluation considered trade-offs among the rankings for each system and criterion, recognizing that there may be significant potential effects from the 3Rs systems and the potential effects for each criterion may occur throughout the life of the system and some may continue beyond the planning period. The overall rankings are provided at the top of Table 4.10.

System 2 (Existing/Committed) was ranked as the highest system overall. It ranked the highest for all three criteria.

System 1 (Existing), System 3 (Extended 3Rs Regulations), and System 4 (Expanded List of Dry Recyclables for Mandatory Separation) were ranked equally as the second highest overall. While systems 3 and 4 were ranked the second highest for all three criteria, System 1 was ranked the highest for Potential Local Community Impacts, second highest for Distribution of Social Costs and Benefits and the third highest for Potential for Broad Social Impact. Therefore the systems were ranked equal.

System 5 (Expanded 3Rs with Organics Regulations) was ranked as the second lowest overall on the basis that it was the second highest for the Potential for Broad Social Impact, second lowest ranked for the Potential Local Community Impacts and lowest for the Distribution of Social Costs and Benefits

System 6 (Processing of all IC&I Waste) was ranked the lowest, because it was ranked the lowest for all three criteria.

#### **4.3.5.2 Social Acceptability**

The social acceptability of each system was evaluated on the basis of the potential effects of the systems on IC&I sector participation, attitudes and perception of 3Rs activities and willingness to pay for the system. Table 4.11 summarizes the analysis.



Based on the above indicators, System 3 (Extended 3Rs Regulations) was ranked the highest. It has the primary advantage of requiring a much higher level of participation (approximately 70% of all IC&I generators) than Systems 1 and 2, the same as System 4, slightly less than System 5 and moderately less than System 6. The system does not require the smallest operators, who are likely to have the greatest difficulty in implementing the regulations, to comply.

The disadvantage of this system is that some smaller businesses, industries and institutions will need to comply with the regulations, with the possibility of negative attitudes and perceptions by owners/managers. These negative attitudes and perceptions will be focused primarily on the regulation for mandatory separation. It is assumed that these generators will have the option of either source separating or contracting a collection service that will separate the materials at the MRF. Having the option to choose the system will likely improve its acceptability. The system may also encourage growth in employee pride and enthusiasm for 3Rs. The improved market potential should be well received by the IC&I sector and is an advantage for Systems 2,3,4,5 and 6 over System 1.

System 4 (Expanded 3Rs Regulations) was ranked the second highest. It has the same components as System 3, but expands the list of dry recyclables. The effects of this system are similar to System 3, but with some potentially increased costs to generators.

System 2 (Existing/Committed) was ranked third highest. It has the second least potential for participation. Small IC&I operators will not be significantly affected by this system and it is expected to be less costly to generators than Systems 3 - 6, with a resulting greater willingness to pay and more positive attitudes and perceptions on the part of the IC&I sector.

Systems 1 (Existing) and 5 (Expanded 3Rs with Organics Regulations) were ranked equally as the second lowest. System 1 has the least potential for increased participation. Most businesses, industries and institutions are unaffected by the regulations. Public and private operators appear willing to pay the current costs for waste management. System 5 has a slightly greater potential for participation than Systems 3 and 4 (much greater than System 1), but the effect of the mandatory separation of wet waste is likely to elicit negative attitudes from the restaurant and grocery sector because of potential health, odour and vermin concerns and added costs from clients. System 5 is likely to apply to many small operators/owners in the restaurant and grocery sector, where compliance might be very difficult. There is likely to be less voluntary compliance than in systems 1, 2, 3 and 4.

System 6 (Processing of all IC&I Waste) was ranked the lowest because, although it will have the greatest participation, it is likely to be the most costly for individual operators to implement and will affect the entire IC&I sector. It is likely to have particularly negative effects on small and medium sized businesses and institutions, as they may need additional storage space and staff time to source separate. They will also pay proportionally more than larger operators for a hauler to separate the materials. There will likely be negative attitudes towards this System. It will require the greatest level of enforcement because all generators will be regulated to comply and there is likely to be greater non-compliance.



TABLE 4.10  
GTA IC&I  
NET EFFECTS SUMMARY FOR SOCIAL ENVIRONMENT

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs with Organics Regulations	System 6 Processing of all IC&I Waste
<b>IMPACT</b>	Second highest ranked	Highest ranked	Second highest ranked	Second highest ranked	Second lowest ranked	Lowest ranked
Potential Local Community Impacts	Highest ranked due to: <ul style="list-style-type: none"> <li>no new facilities required</li> <li>effects are due to increased use of existing facilities</li> <li>least potential for nuisance and health effects on residents, special/sensitive groups, communities and community features and businesses</li> </ul>	Highest ranked due to: <ul style="list-style-type: none"> <li>no new facilities required</li> <li>effects are due to increased use of existing facilities</li> <li>least potential for nuisance and health effects on residents, special/sensitive groups, communities and community features and businesses</li> </ul>	Second highest ranked due to: <ul style="list-style-type: none"> <li>new MRFs will be required; no new compost facilities required</li> <li>increased flow of materials and new MRFs</li> <li>potential for displacement and disruption effects greater than systems 1 and 2 but less than systems 5 and 6</li> </ul>	Second highest ranked due to: <ul style="list-style-type: none"> <li>new MRFs will be required; no new compost facilities required</li> <li>increased flow of materials and new MRFs</li> <li>potential for displacement and disruption effects greater than systems 1 and 2 but less than systems 5 and 6</li> </ul>	Second lowest ranked due to: <ul style="list-style-type: none"> <li>new MRFs will be required</li> <li>new or expanded compost facilities will be required</li> <li>potential for significant odour effects from composting facilities</li> <li>second most potential for nuisance effects, primarily associated with compost facilities</li> <li>potential for displacement effects</li> </ul>	Lowest ranked due to: <ul style="list-style-type: none"> <li>new MRFs and composting facilities required to process all IC&amp;I materials in the GTA</li> <li>significant potential for odour effects</li> <li>greatest potential for nuisance effects and displacement</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs with Organics Regulations	System 6 Processing of all IC&I Waste
Potential for Broad Social Impact	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>places the least amount of regulation and the least cost on the IC&amp;I sector</li> <li>least potential to increase economies of scale for recyclables due to lower volumes and fewer types of materials than other systems</li> <li>least potential to develop direct employment and economic opportunities in the waste management sector</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>places the second least amount of regulation on the IC&amp;I sector with increased cost over system 1 for major IC&amp;I</li> <li>second least potential to increase economies of scale for recyclables due to lower volumes and fewer types of materials than other systems</li> <li>second least potential to develop employment and economic opportunities in the waste management sector</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>places the third least amount of regulation on the IC&amp;I sector with increased costs over system 1 and 2</li> <li>third most potential to increase economies of scale for recyclables</li> <li>third least potential to develop employment and economic opportunities in the waste management sector</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>places the second most amount of regulation on the IC&amp;I sector with increased costs over systems 1, 2, 3 and 5</li> <li>second most potential to increase economies of scale for recyclables from greater volumes and types of materials</li> <li>second most potential to develop employment and economic opportunities in the waste management sector</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>places the third most amount of regulation on the IC&amp;I sector with increased costs over systems 1, 2, and 3. Will affect a few types of businesses and institutions (grocery, hospitals, etc.) more.</li> <li>third most potential to increase economies of scale for recyclables</li> <li>third most potential to develop employment and economic opportunities in the waste management sector, primarily in composting</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>places the most amount of regulation on the IC&amp;I sector with greatest cost increases to largest portion of the IC&amp;I</li> <li>greatest potential to increase economies of scale for recyclables and support recycling/green industries</li> <li>greatest potential to develop employment and economic opportunities in the waste management sector as full and specialized service will be required</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs with Organics Regulations	System 6 Processing of all IC&I Waste
Potential for Broad Social Impact (con't)	<ul style="list-style-type: none"> <li>third least potential to positively affect IC&amp;I attitudes, behaviour and operations</li> <li>least negative operational effects on the IC&amp;I sector</li> </ul>	<ul style="list-style-type: none"> <li>potential to positively affect IC&amp;I attitudes, behaviour and operations</li> <li>second least negative operational effects; restricted mainly to major IC&amp;I who can accommodate the requirements better</li> </ul>	<ul style="list-style-type: none"> <li>second greatest potential to positively affect IC&amp;I attitudes, behaviour, and operations</li> </ul>	<ul style="list-style-type: none"> <li>second greatest potential to positively affect IC&amp;I attitudes, behaviour, and operations</li> </ul>	<ul style="list-style-type: none"> <li>second least potential to positively affect IC&amp;I attitudes, behaviour and operations</li> </ul>	<ul style="list-style-type: none"> <li>least potential to positively effect IC&amp;I attitudes, behaviour and operations</li> <li>potential for greatest negative affect on operation of many IC&amp;I from source separation of wet waste</li> </ul>

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs with Organics Regulations	System 6 Processing of all IC&I Waste
Distribution of Social Costs and Benefits	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>least potential for negative distribution effects from facilities as no new facilities are required</li> <li>least potential positive effect for future generations (magnitude uncertain)</li> <li>second most positive effect on distribution of regulation. Focus on construction and demolition landfill bans</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>least potential for negative distribution effects from facilities as no new facilities are required</li> <li>potential positive effect for future generations (magnitude uncertain)</li> <li>most positive distribution regulation effect. Avoids small businesses, but is broadly based</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>third most potential for negative distribution effects from facilities with less facilities required and less potential community effects than systems 5 and 6</li> <li>potential positive effect for future generations (magnitude uncertain)</li> <li>second most positive distribution regulation effect. May avoid small businesses, is broadly based, but may include small to medium sized businesses</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>third most potential for negative distribution effects from facilities with less facilities required and less potential community effects than systems 5 and 6</li> <li>potential positive effect for future generations (magnitude uncertain)</li> <li>second most positive distribution regulation effect. Avoids small businesses, but may include small to medium sized businesses</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>second most potential for negative distribution effects from facilities, in particular compost facilities</li> <li>potential positive effect for future generations (magnitude uncertain)</li> <li>least positive distribution regulation effect. Only a few sectors (restaurants, grocery, hospitals, etc.) are the target of this system</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>most potential for negative distribution effects from facilities, in particular compost facilities</li> <li>potential for high positive effect for future generations (magnitude uncertain)</li> <li>second least positive distribution regulation effect. Affects everyone, but appear to be few provisions for small businesses</li> </ul>

TABLE 4.11  
GTA IC&I  
NET EFFECTS SUMMARY FOR SOCIAL ACCEPTABILITY

Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs with Organics Regulations	System 6 Processing of all IC&I Waste
Service						
Social Acceptability	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for least participation small IC&amp;I generators not significantly affected by regulations in systems 1 and 2 operators appear willing to pay</li> <li>potential for voluntary compliance by those not regulated greater than systems 2 - 6.</li> </ul>	<p>Third highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for second least participation (applies to about 20% of operators)</li> <li>small IC&amp;I generators not significantly affected by regulations in systems 1 and 2 operators appear willing to pay</li> </ul>	<p>Highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for greater participation than systems 1 and 2 but less than systems 5 and 6</li> <li>many small operators will be required to comply; smallest operators not required to participate</li> <li>potential for negative attitudinal effect by some IC&amp;I generators because of increased regulation; potential for increase in employee pride</li> </ul>	<p>Second highest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for greater participation than systems 1 and 2 but less than systems 5 and 6</li> <li>many small operators will be required to comply; smallest operators not required to participate</li> <li>additional burden on many operators due to expanded sorting requirements</li> </ul>	<p>Second lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for greater participation than systems 1, 2, 3 and 4, but less than system 6</li> <li>market development improves IC&amp;I sector attitudes to systems 3, 4, 5 and 6</li> <li>second greatest potential negative attitudes from grocery and restaurant sector</li> </ul>	<p>Lowest ranked due to:</p> <ul style="list-style-type: none"> <li>potential for greatest participation as the entire IC&amp;I sector is required to participate</li> <li>market development improves IC&amp;I sector attitudes to systems 3 - 6</li> <li>system 6 is the most costly to implement with the most significant cost of compliance on small to medium size public and independent private operators</li> </ul>



Goal/Criteria Group/Criteria	System 1 Existing	System 2 Existing/Committed	System 3 Extended 3Rs Regulations	System 4 Expanded 3Rs Regulations	System 5 Expanded 3Rs with Organics Regulations	System 6 Processing of all IC&I Waste
Social Acceptability		<ul style="list-style-type: none"> <li>potential for IC&amp;I willingness to pay; some major IC&amp;I generators currently implement regulations</li> <li>potential for voluntary compliance by those not regulated, greater than systems 3-6</li> </ul>	<ul style="list-style-type: none"> <li>potential for voluntary compliance by those not regulated greater than systems 4, 5, and 6; market development improves IC&amp;I sector attitudes to systems 3, 4, 5 and 6</li> <li>Greater enforcement required than systems 1 and 2</li> <li>Cost of compliance greater than systems 1 and 2</li> </ul>	<ul style="list-style-type: none"> <li>potential for negative attitudinal effect by some IC&amp;I generators because of increased regulation; potential for increase in employee pride</li> <li>potential for voluntary compliance by those not regulated greater than systems 5 and 6; market development improves IC&amp;I attitudes to systems 3, 4, 5, and 6</li> <li>Greater enforcement required than systems 1 and 2</li> <li>Cost of compliance greater than systems 1, 2, and 3</li> </ul>	<ul style="list-style-type: none"> <li>cost of compliance higher for small IC&amp;I generators than system 3 with more effects on grocery and restaurant sector; health and customer issues with restaurants due to storage and sorting food waste</li> <li>all but smallest operators required to participate potential for proportion of non-compliance to be higher with less voluntary compliance than systems 1, 2, 3 and 4</li> </ul>	<ul style="list-style-type: none"> <li>greatest level of enforcement required potential for non-compliance proportion most with no additional voluntary compliance</li> </ul>



#### **4.4 Summary of Findings**

For each Region the alternative 3Rs systems have been ranked in two categories: the Social Impact Criterion Group and Social Acceptability. The Social Impact Criteria Group includes: Potential Local Community Impacts; Potential for Broad Social Impact; and Distribution of Costs and Benefits. The evaluation, discussed in Section 4.3 above, is summarized below by region for the residential 3Rs systems and GTA wide for the IC&I 3Rs systems. The evaluation tables for each system in each region are shown in Section 4.3.

Social Acceptability is one of the four Service Criteria (see RIS, 1993). The Social Acceptability indicators are: participation in the 3Rs system, attitudes and perceptions and willingness to pay. The detailed Summary Net Effects Tables for each Region for the Social Impact Criterion and Social Acceptability are presented in Schedule A.

##### **4.4.1 Durham Region**

###### **4.4.1.1 Social Impact Criteria**

System 3 (Direct Cost) and System 4 (Expanded Blue Box) were ranked the highest overall. Expanded Blue Box was ranked the highest for Potential for Broad Social Impact and Distribution of Social Costs and Benefits and second highest for Potential Local Community Impacts. Direct Cost was ranked the highest for Potential Local Community Impacts and second highest for the other two criteria. Neither system is likely to produce significant levels of local community impacts and both encourage greater recycling. Direct Cost is ranked higher in Durham Region than in other Regions because it is likely to be more suitable to the greater proportion of low density housing. Due to the uncertainties involved in the analysis, such as the potential extent of illegal dumping and burning with direct cost, a judgement could not be made on which of the two systems was better than the other.

System 5 (Wet/Dry) was ranked the second highest on the basis that it was the second highest for the Distribution of Social Costs and Benefits, third highest for Potential for Broad Social Impact and second lowest for Potential Local Community Impact. Because of the low density nature of Durham Region, there are likely to be less negative effects with this system than in other Regions. However, the uncertainties regarding costs could lower its ranking.

System 2 (Existing/Committed) was ranked the second lowest. It was ranked the

highest for Potential Local Community Impacts and second lowest for the other two criteria. While it is ranked the highest because it has fewer local community impacts (because fewer facilities are required than Direct Cost, Expanded Blue Box, Wet/Dry, and Mixed Waste Processing), it does little to improve distribution or to increase employment and economic development opportunities through increased volumes of materials available for recycling industries.

System 1 (Existing) and System 6 (Mixed Waste Processing) were ranked the lowest. Based on the uncertainties involved in the analysis, the systems were ranked the same. The Existing system was ranked the highest for Potential Local Community Impacts and lowest for the other two criteria. This system does little to improve: economic development and employment opportunities in the waste management sector; 3Rs lifestyle behaviour; or conditions for future generations. The Mixed Waste Processing System was ranked the lowest for Potential Local Community Impact and second lowest for the other two criteria. The concerns with this system are: the potential local community impacts from the mixed waste processing and composting facilities; the high cost of the systems and the lower willingness to pay; and, with the processing of all unsorted waste, residents may reduce their household separation.

#### **4.4.1.2 Social Acceptability**

System 4 (Expanded Blue Box) was ranked the highest because residents and municipalities accept it, and they are familiar with it and willing to pay for it (if current subsidies continue).

System 3 (Direct Cost) and System 5 (Wet/Dry) were ranked the second highest because they both have the potential to encourage greater participation in 3Rs and are suitable for the low density urban areas of Durham Region where the majority of the Region's population lives.

System 1 (Existing) and System 2 (Existing/Committed) were ranked the third highest because, although residents are familiar with the components of the systems and costs are acceptable (if current subsidies continue), they are unlikely to increase participation by individuals in 3Rs activities as much as the Direct Cost, Expanded Blue Box, and Wet/Dry Systems.

System 6 (Mixed Waste Processing) was ranked the lowest. The primary disadvantages are: the potential adverse attitudes and perceptions based on the potential local community impacts of the facility; the potential for high system costs; and the potential for households to reduce their separation of waste.

#### **4.4.2 Metro Toronto**

##### **4.4.2.1 Social Impact Criteria**

System 4 (Expanded Blue Box) was ranked the highest overall. It ranked highest for the criteria of Potential for Broad Social Impact and Distribution of Social Costs and Benefits (see Table 4.4). The system is broadly based and expected to be available to all households. It ranked second highest for Potential Local Community Impacts. It is likely to have more somewhat greater local community effects than Existing, effects equal to the Existing/Committed and Direct Cost Systems and, effects somewhat less than the Wet/Dry System and much less than the Mixed Waste Processing System, due to the differences in system facilities.

System 2 (Existing/Committed) and System 3 (Direct Cost) were ranked second highest overall based on their second highest ranking under all three criteria. While the Direct Cost System may have some negative effects under all three criteria, the majority of effects can be reduced or eliminated through proper mitigation, although direct cost schemes may be ineffective in apartment buildings. The Existing/Committed System does not go as far as the Direct Cost System in addressing distribution of service issues or improving economies of scale for recycling industries.

System 5 (Wet/Dry) was ranked the third highest on the basis that it was ranked the second highest for the Distribution of Social Costs and Benefits, third highest for Potential for Broad Social Impact and second lowest for Potential Local Community Impact. The primary concern for this system in Metropolitan Toronto is its applicability and effects in high density residential areas. There is uncertainty about the Wet/Dry System because of a lack of previous experience in applying this system in a large North American metropolitan area and the cost of the system. This reduces the level of certainty of the analysis. Because of the potential effects associated with this system in apartment buildings, it was ranked lower than the Existing/Committed, Direct Cost and Expanded Blue Box Systems.

System 1 (Existing) was ranked as the second lowest. It ranked as the lowest for Potential for Broad Social Impact and Distribution of Social Costs and Benefits. The system does little to improve economic development and employment opportunities in the waste management sector, promote positive 3Rs lifestyle behaviour change, or provide positive effects for future generations (through potentially improved conservation behaviour and reduced pressure on natural resources). It ranked highest for Potential Local Community Impacts because no new facilities are required.

System 6 (Mixed Waste Processing) was ranked the lowest because it was ranked the lowest for the Potential Local Community Impact, second lowest for Potential for Broad Social Impact and third highest for Distribution of Social Costs and Benefits. The concerns with the system are: the potential for high cost; the odour effect from the facility may create significant local community impacts; and by processing all unsorted waste, residents may reduce or discontinue their waste separation activities.

#### **4.4.2.2 Social Acceptability**

System 4 (Expanded Blue Box) was ranked as the highest system because residents and municipalities are familiar with the system components and infrastructure and can be expected to respond more quickly and positively to the system (see Table 4.5). The Expanded Blue Box System also appears more suitable to the broad range of housing density patterns in Metro Toronto and has the potential to increase participation more than the Existing, Existing/Committed or Direct Cost Systems.

System 3 (Direct Cost) ranked second highest. It is likely to encourage greater household separation of waste than either the Wet/Dry or Mixed Waste Processing Systems. It increases service and participation above Existing and Existing/Committed Systems, and costs are expected to be acceptable (if residents are not double taxed). While it will be ineffective in increasing service beyond existing/committed in apartment buildings, it should be applicable in low density areas.

System 2 (Existing/Committed) was ranked third highest because it supports and encourages positive 3Rs behaviours and leads to somewhat more positive attitudes and perceptions, although with limited increased participation. The costs of this system are acceptable to residents and municipalities.

System 5 (Wet/Dry) was ranked the third lowest. While applicable to low density areas, this system may encounter negative attitudes and concerns about effects on residents and costs in high density areas. It would probably not be acceptable in these areas.

System 1 (Existing) was ranked the second lowest. While all aspects of this system are acceptable, it does little to positively influence 3Rs behaviour and participation.

System 6 (Mixed Waste Processing) was ranked the lowest. Based on the cost, it is expected that residents and municipalities may be unwilling to pay for the system particularly when reliability is an issue. Due to odour effects there is likely to be



opposition to this system. Also, this System may deter some people from separating their waste.

#### **4.4.3 Peel Region**

##### **4.4.3.1 Social Impact Criteria**

System 4 (Expanded Blue Box) was ranked as the highest system overall. It ranked highest for the criteria of Potential for Broad Social Impact and Distribution of Social Costs and Benefits. The system is distributed broadly; it can be implemented for the housing types in Peel; and, it will lead to increased volumes of materials for recycling industries. It ranked the second highest for Potential Local Community Impacts. It is likely to have only moderately greater effects on the local community than the Existing System, effects equal to the Existing/Committed, Direct Cost and Expanded Blue Box and many fewer effects than Mixed Waste Processing Systems.

System 3 (Direct Cost) was ranked the second highest overall based on its second highest ranking for all three criteria. While direct cost may have some negative effects in all three criteria, the majority of effects can be reduced or eliminated through proper mitigation, although it is not likely to be effective in apartment buildings.

System 2 (Existing/Committed) and System 5 (Wet/Dry) were ranked as the third highest. The Existing/Committed System was ranked the second highest for Potential Local Community Impacts and second lowest for the other two criteria. The Wet/Dry System was ranked second lowest for Local Community Impacts, third highest for Potential for Broad Social Impact and second highest for Distribution of Social Costs and Benefits. Due to the uncertainties involved in the analysis for each criterion, a judgement could not be made on which of the two systems was better than the other. The Existing/Committed System does not go as far as the Wet/Dry System in addressing distribution of service issues or improving economies of scale for recycling industries. The primary concern for the Wet/Dry System in Peel Region is its applicability and effects in high density areas. There is uncertainty about the Wet/Dry System because there is no previous experience of this type of system in a large metropolitan area in North America and there are concerns about the costs of the system. Because of the variety of potential effects associated with this system in apartment buildings it was ranked lower than Direct Cost and Expanded Blue Box Systems.

System 1 (Existing) was ranked as the second lowest. It ranked as the lowest for

Broad Social Impact and Distribution of Social Costs and Benefits and highest for Potential Local Community Impacts. The Existing System does little to improve: economic development and employment opportunities in the waste management or industrial sector; 3Rs lifestyle behaviour change; or conditions for future generations.

System 6 (Mixed Waste Processing) was ranked lowest because it was the lowest for the Potential Local Community Impact, second lowest for Broad Social Impact and third lowest for Distribution of Social Costs and Benefits. The two concerns with this system are: the high cost and the potential that residents and municipalities would not be willing to pay for the system; and, by processing all unsorted waste, residents may not be inclined to source separate.

#### **4.4.3.2 Social Acceptability**

System 4 (Expanded Blue Box) was ranked as the highest system because residents and municipalities are familiar with the system components and infrastructure and can be expected to respond more quickly and positively to the system. The Expanded Blue Box System also appears more suitable to the broad range of housing density patterns in Peel Region and has the potential to increase participation more than Existing, Existing/Committed and Direct Cost Systems.

System 2 (Existing/Committed) and System 3 (Direct Cost) ranked second highest. They are more suitable than either Wet/Dry and Mixed Waste Processing Systems and increase service and participation above Existing and Wet/Dry. While the Direct Cost System will be ineffective in increasing service beyond the existing/committed system in apartment buildings, it should be applicable in low density areas. The costs of these systems are acceptable to residents and municipalities.

System 5 (Wet/Dry) was ranked the third highest. While applicable to low density areas, this system may encounter negative attitudes and concerns about effects and costs in high density areas and is therefore likely less acceptable in these areas.

System 1 (Existing) was ranked the second lowest. While all aspects of this system are acceptable, it does little to positively influence 3Rs behaviour and participation.

System 6 (Mixed Waste Processing) was ranked the lowest. Due to the potential for high costs, there is likely to be significant opposition to this system. This system may deter some people from source separation.



#### **4.4.4 York Region**

##### **4.4.4.1 Social Impact Criteria**

System 4 (Expanded Blue Box) was ranked as the highest system overall. It ranked highest for Broad Social Impact and Distribution of Social Costs and Benefits. The system is distributed broadly, is acceptable to residents and will lead to increased volumes of materials for recycling industries. It ranked second highest for Potential Local Community Impacts. It is likely to have only moderately greater effects on the local community than the Existing System, and effects equal to the Existing/Committed and Direct Cost Systems, and many fewer effects than Mixed Waste Processing System.

System 3 (Direct Cost) was ranked second highest overall based on its second highest ranking for all three criteria. While the Direct Cost System may have some negative effects in all three criteria, the majority of effects can be reduced or eliminated through proper mitigation. This System is also suitable to the low density character of York Region.

System 5 (Wet/Dry) was ranked third highest on the basis that it was the second highest for the Distribution of Social Costs and Benefits and for Broad Social Impact and second lowest for Potential Local Community Impact. Because of the low density nature of York, there are likely to be less negative effects with this system than in Metro Toronto and Peel Region. An important difference between the Wet/Dry and Direct Cost Systems is that the Wet/Dry System has the potential additional odour and nuisance effects associated with the "wet" waste at a new MRF.

System 2 (Existing/Committed) was ranked second lowest. It was ranked second highest for Potential Local Community Impacts and second lowest for the other two. While it has few local community impacts, it does little to improve distribution of 3Rs service or increase employment and economic development through increased volumes of materials for recycling industries.

Based on the uncertainties involved in the analysis, a judgement could not be made as to whether the Existing or Mixed Waste Processing Systems should be ranked higher. The Existing System was ranked the highest for Potential Local Community Impacts and lowest for the other two criteria. The Existing System does little to improve: economic development and employment opportunities in the waste management sector; 3Rs lifestyle behaviour change; or positive effects for future generations. Mixed Waste Processing was ranked lowest for Potential Local Community Impact and second lowest for the other two criteria. The two concerns

with this system are: willingness to pay; and, by processing all unsorted waste, residents may not be inclined to source separate.

#### **4.4.4.2 Social Acceptability**

System 4 (Expanded Blue Box) was ranked as the highest system overall because residents and municipalities are familiar with the system components and infrastructure and can be expected to respond more quickly and positively to the system. The Expanded Blue Box System also appears more suitable to the broad range of housing density patterns in York Region and it has the potential to increase participation more than the Existing, Existing/Committed and Direct Cost Systems.

System 3 (Direct Cost) ranked as the second highest system. It is likely to be more suitable than either the Wet/Dry or Mixed Waste Processing Systems and increases service and participation above the Existing and Existing/Committed Systems. The Direct Cost System is more suitable in low density areas which constitute 89% of the households in the Region.

The Existing/Committed and Wet/Dry Systems were ranked as the third highest. The Existing/Committed System supports and encourages 3Rs behaviours and leads to somewhat more positive attitudes and perceptions, although it provides limited increased participation. The costs of this system are acceptable to residents and municipalities. The Wet/Dry System is more suitable in low density areas which constitute 89% of the households in the Region.

System 1 (Existing) was ranked the second lowest. While all aspects of this system are acceptable, it does little to positively influence 3Rs behaviour and participation.

System 6 (Mixed Waste Processing) was ranked the lowest. This system may deter some people from source separation and there may not be a willingness to pay for the high costs of the system.

#### **4.4.5 IC&I Sector**

##### **4.4.5.1 Social Impact Criteria**

System 2 (Existing/Committed) was ranked as the highest system overall. It ranked highest for all three criteria. Systems 3, 4, 5 and 6 will require more facilities with resulting effects on communities. This system applies regulations primarily to the

major IC&I generators, those which are best able to pay the additional costs required.

Systems 1 (Existing), 3 (Extended 3Rs Regulations), and 4 (Expanded 3Rs Regulations) were ranked equally as the second highest overall. While Systems 3 and 4 were ranked the second highest for all three criteria, System 1 was ranked the highest for Potential Local Community Impact, second highest for Distribution of Social Costs and Benefits and third highest for Potential Broad Social Impact. System 1 has the least potential for local effects and places very little regulation on IC&I generators. Systems 3 and 4 have the advantage of promoting market development and increasing the supply of materials for recycling industries, while avoiding regulation for the smallest businesses.

System 5 (Expanded 3Rs with Organics Regulations) was ranked as the second lowest overall, on the basis that it was the second highest for the Broad Social Impact, second lowest for Potential Local Community Impact and lowest for Distribution of Social Costs and Benefits. This System emphasizes the processing of food waste, which is likely to cause significant odour effects at composting facilities. This System will also be quite costly for small and independent restaurants and grocery stores.

System 6 (Processing of all IC&I Waste) was ranked the lowest because it was ranked the lowest for all three criteria. Significant odour effects are possible at the mixed waste processing plants. This system will likely have significant cost effects on small businesses throughout the GTA.

#### **4.4.5.2 Social Acceptability**

System 3 (Extended 3Rs Regulations) was ranked as the highest. It has the primary advantage of requiring a much higher level of participation (approximately 70% of all IC&I generators) than Systems 1 and 2, equal to 4, slightly less than 5 and moderately less than 6. While this System will affect small generators, it will not affect the smallest. It is assumed that these generators will have the option of either source separating or contracting a collection service to separate the materials at the MRF.

System 4 (Expanded 3Rs Regulations) was ranked as the second highest. It has the same components as System 3 but expands the list of dry recyclables. The effects of this system are similar to System 3, but with potentially increased costs to generators.

System 2 (Existing/Committed) was ranked third highest. It has the second least

potential for participation. Small IC&I generators will not be significantly affected by this system and it is expected to be less costly to generators than Systems 3, 4, 5 and 6, with a resulting greater willingness to pay and more positive attitudes and perceptions on the part of the IC&I sector.

Systems 1 (Existing) and 5 (Expanded 3Rs with Organics Regulations) were ranked equally as the second lowest. System 1 has the least potential for increased participation. Most businesses, industries and institutions are unaffected by the regulations. The effect of mandatory separation of wet waste in System 5 is likely to elicit negative attitudes from the restaurant and grocery sectors because of potential odour and nuisance concerns.

System 6 (Processing of all IC&I Waste) was ranked as the lowest because, although it will have the greatest participation, it is likely to be the most costly for individual operators to implement and will affect the entire IC&I sector. It is likely to have particularly negative effects on small and medium sized businesses and institutions, as they may need additional storage space and staff time to source separate.

#### **4.4.6 Summary of Residential 3Rs System Rankings: Social Impact Assessment**

Table 4.12 presents the overall ranking for the Social Impact Criteria Group of each of the six residential 3Rs system for each region. The rationale for the systems ranking is presented below the table.

Generally, what distinguishes one system from another is its dominant element, such as "direct cost" or "mixed waste processing." Many components and sub-components, such as reuse activities or HHW collection, exist in all systems and therefore do not affect the ranking between systems.

The systems rankings between the regions vary to some extent. The main reason for the difference in the rankings between regions is that a particular system was evaluated to be a more suitable fit in some regions than in others. This is primarily due to the housing and demographic characteristics of a particular region. For example, in three regions the Wet/Dry System ranks equal to or higher than the Existing/Committed System. However, in Metropolitan Toronto, it ranks lower due to the effects of the system associated with the higher proportion of high density areas in Metro. The rankings also vary from region to region depending on the required components of a given system. For example, in Peel Region new facilities are required in the Existing/Committed System, whereas in Durham they are not.

The interval between a highest ranking and a second highest ranking in one region does not necessarily represent the same level of difference in another region.

**TABLE 4.12**  
**SUMMARY OF RESIDENTIAL 3RS SYSTEMS RANKINGS:**  
**SOCIAL IMPACT ASSESSMENT**

Residential 3Rs System	Durham Region	Metro Toronto	Peel Region	York Region
System 1: Existing	Lowest ranked	Second lowest ranked	Second lowest ranked	Lowest ranked
System 2: Existing/Committed	Second lowest ranked	Second highest ranked	Third highest ranked	Second lowest ranked
System 3: Direct Cost	Highest ranked	Second highest ranked	Second highest ranked	Second highest ranked
System 4: Expanded Blue Box	Highest ranked	Highest ranked	Highest ranked	Highest ranked
System 5: Wet/Dry	Second highest ranked	Third highest ranked	Third highest ranked	Third highest ranked
System 6: Mixed Waste Processing	Lowest ranked	Lowest ranked	Lowest ranked	Lowest ranked

System 4 (Expanded Blue Box) ranks as the highest system in all four regions. Typically, this system does not require the construction and operation of major new facilities in addition to those found in the Existing/Committed System and therefore has only low to moderate potential for significant local community impacts from facilities.

The potential for the Expanded Blue Box System to generate negative Broad Social Impacts in the GTA are generally considered less than for the other systems because it provides the potential for residents to continue to change their lifestyle in a way that is familiar to them while encouraging separation of a greater number of materials, less frequently and with less errors than other systems. The Expanded Blue Box System is easy to implement and suitable to low density residential development and can be applied to multi-family dwellings more easily than some other systems. This System also increases economies of scale for recycling industries by increasing the amount of materials collected.



With regard to the distribution of social costs and benefits, the Expanded Blue Box System provides 3Rs services to more people than the Existing, Existing/Committed and Direct Cost Systems\* and maintains the promotion of changes in 3Rs lifestyle/behaviour that should have a positive future generational effect.

In Durham Region, the Direct Cost System ranks highest, equal to the Expanded Blue Box System. The Direct Cost system ranks the second highest in the other three regions. Overall, the two key factors that cause the Direct Cost System to rank lower than the Expanded Blue Box System are: (1) the potential for some illegal dumping and burning and (2) the potential of providing fewer households with opportunities to participate.

The Direct Cost System has similar local community impacts to the Existing/Committed and Expanded Blue Box Systems as all require the same number of facilities.

The Direct Cost System has similar economic development and employment effects to the Expanded Blue Box System. It will increase economies of scale for recycling industries greater than the Existing and Existing/Committed Systems but less than the Wet/Dry and Mixed Waste Processing Systems. Its primary negative lifestyle effect is the potential for illegal dumping and burning in certain areas (most likely rural areas).

In terms of the distribution of social costs and benefits, the Direct Cost System provides the opportunity to participate in 3Rs activities to more households than the Existing and Existing/Committed Systems, and somewhat less than the other three systems. It maintains the promotion of changes to 3Rs lifestyle/behaviour that should have a positive future generational effect.

Generally, the Wet/Dry System ranks lower than the Direct Cost System and higher than the Existing/Committed System. However, in Metro Toronto, it ranks lower than the Existing/Committed System because of the potential negative effects associated with the system in high density areas.

Overall, the Wet/Dry System ranks lower than all other systems except Mixed Waste Processing in potential local community impacts, because of the additional facilities required and the greater potential for odour associated with the "wet" stream. While the Wet/Dry System ranks higher than all others except the Mixed Waste Processing System for employment and economic development because of its potential for greater economies of scale, it has the potential for a variety of lifestyle inconveniences and negative operational effects in high density housing areas.



With regard to the distribution of social costs and benefits, the Wet/Dry System provides greater opportunities for household participation than the first three systems, and equal opportunities to the other two, but has greater potential for negative distribution of social effects due to the required facilities.

The Existing/Committed System ranks consistently higher than the Existing and Mixed Waste Processing Systems and lower than the Wet/Dry System in Durham and York Regions. In Metro Toronto and Peel Region, the larger proportion of high density housing lowers the Wet/Dry System ranking so that the Existing/Committed System ranks higher in these two Regions.

The Existing/Committed System has similar potential local community effects from facilities to the Direct Cost and Expanded Blue Box Systems, less negative broad social impacts than the Wet/Dry or Mixed Waste Processing Systems and somewhat more negative local community impacts than the Existing System. It also has few lifestyle inconveniences and people are familiar with the system. It has the second lowest potential to improve economies of scale and the associated employment and economic development effects in 3Rs related industries.

In terms of the distribution of social costs and benefits, the Existing/Committed System offers the second lowest level of participation opportunities in 3Rs activities and the second least positive effect on future generations from behaviour change in the current generation and potential reduction in the use of natural resources.

The Existing System ranks equal to or higher than the Mixed Waste Processing System in all regions. This system has the least potential for local community impacts because, unlike all of the other systems, it requires no additional facilities (e.g., composting, MRF and depots/transfer stations) and does not have the associated potential social effects.

While the Existing System has few associated inconveniences, it does the least to increase economies of scale for recycling industries and thus has lower potential positive effects for employment and economic development.

This System has the least negative distribution effect from facilities because it does not require additional facilities. However, it minimizes the distribution of opportunities to participate in 3Rs activities and has a lower potential future generational effect, because it does little to change the existing situation over the planning period.

The Mixed Waste Processing System ranks as the lowest residential system in all

regions. This is because it has the greatest potential for significant local community impact (due to the social effects associated with mixed waste processing and composting facilities) and the potential for changes to lifestyle which do not support 3Rs individual behaviour (i.e., the system provides the opportunity for individuals to set out their garbage for pickup without separating out the reusables and recyclables). It also has negative distributional effects in situations where some residents in the region are likely to sustain negative effects from the facility operation while the majority of regional residents are unaffected by the facility operation although they benefit from it. These potential effects of the system are independent of the regional setting (although siting could influence the magnitude and extent of Local Community Impacts).

Mixed Waste Processing has the greatest potential for employment and economic development through the supply of greater volumes of material for industries; however, there is greater uncertainty about the benefits to future generations.

#### **4.4.7 Summary of Residential 3Rs System Rankings: Social Acceptability**

Table 4.13 shows the social acceptability rankings for the residential 3Rs systems for each region.

The Expanded Blue Box System ranks highest in all four Regions. This can be attributed to three factors: the familiarity of residents to the system components, resulting in more immediate and positive responses; the improved level of service to residents, resulting in greater participation; and, acceptable costs, given current levels of subsidies. Housing density is also important, as an Expanded Blue Box System is suitable for a broad range of housing densities (e.g., Metro Toronto).

The Direct Cost System ranks consistently as the second highest system, although ranked equally with the Wet/Dry System in Durham Region and the Existing/Committed System in Peel Region. The advantages of the Direct Cost System include: the potential for greater participation and increases in positive attitudes in 3Rs over the long term; the suitability for low density areas (Durham, Peel, York Regions); and acceptable costs (if residents are not double taxed). In Metro Toronto, participation may not be increased beyond that of the Existing/Committed System because of the difficulty in implementing direct cost in apartment households. However, because of the increase in participation in the low-density areas of Metro Toronto, the Direct Cost System ranked higher than the Existing/Committed System. The main disadvantages of the Direct Cost System are: the difficulty in implementing direct cost in apartment households; the possibility of

illegal dumping and burning; and, potential controversy with initial negative attitudes.

In all regions, the Existing/Committed System ranks either second or third highest. This system generally ranks below the Expanded Blue Box and Direct Cost Systems because it is not likely to increase participation in 3Rs activities as much as the other two. Its ranking is improved because of familiarity and cost acceptability.

The Wet/Dry System is similar to the Existing/Committed System, as it ranks second highest in Durham Region, third highest in Peel and York Regions and third lowest in Metro Toronto. The ranking is lowest in Metro Toronto primarily because of the high proportion of apartments and the difficulties with cost, and health, odour, and nuisance effects. The Existing/Committed and Wet/Dry Systems are equally acceptable with respect to cost (along with the Direct Cost and Expanded Blue Box Systems).

The Wet/Dry System consistently ranked the same or one above the Existing System, with the tie occurring in York Region. Generally, the Wet/Dry System was ranked over the Existing System because of the greater potential to encourage stronger positive attitudes and behaviour toward the 3Rs. The uncertainty regarding the costs of the Wet/Dry System contribute to its lower ranking.

The Mixed Waste Processing System ranked as the lowest system in all Regions, mainly because: odour problems threaten facility operation; it does not encourage household separation and could reduce individual participation in some system components; and, municipalities and residents may be unwilling to pay the higher costs of the facilities.

**TABLE 4.13**  
**SUMMARY OF RESIDENTIAL 3RS SYSTEMS RANKINGS:**  
**SOCIAL ACCEPTABILITY**

Residential 3Rs System	Durham Region	Metro Toronto	Peel Region	York Region
System 1: Existing	third highest ranked	second lowest ranked	second lowest ranked	third highest ranked
System 2: Existing/Committed	third highest ranked	third highest ranked	second highest ranked	third highest ranked
System 3: Direct Cost	second highest ranked	second highest ranked	second highest ranked	second highest ranked
System 4: Expanded Blue Box	highest ranked	highest ranked	highest ranked	highest ranked
System 5: Wet/Dry	second highest ranked	third lowest ranked	third highest ranked	third highest ranked
System 6: Mixed Waste Processing	lowest ranked	lowest ranked	lowest ranked	lowest ranked





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### BIBLIOGRAPHY

Abt Associates Inc., 1989, Promoting Source Reduction and Recyclability in the Marketplace. (Prepared for U.S. Environmental Protection Agency).

Alderden, J. 1990, "Volume-Based Rates, Dream or Nightmare?" Recycling Today, November.

Angus Reid Group, 1991, Summary Report. Ontario Public Opinion on the Provincial Government's Waste Reduction Efforts.

Argonaut AEC - Waste Management Services, 1991, "GM of Canada Reduces Dependence on Local Landfills." Waste Watch. Summer.

Bagby, Jennifer. Diangson, Ticiang & Patterson, Gene., 1992, "Participation in Seattle's Curbside Recycling Collection Programme." Resource Recycling: 64-71.

Baker, N., 1991, "Peel Region Helps Businesses Reduce and Divert Waste." Muniscope.

Baker, N. (Region of Peel), ND, "Perspective on Packaging". (Paper obtained from Recycling Development Corporation).

Bell Canada, 1991, Zero Waste: It Means the World to Us.

Benner, Lee, & Watson, J., 1992, "Preventing Tomorrow's Garbage Today: Waste Reduction Education." Resource Recycling: 46-53.

Biocycle (No primary author), 1989, Guide to Collecting, Processing, and Marketing Recyclables. The J.G. Press Inc. Emmaus, Pennsylvania.

Biocycle (No primary author), 1990, "How To Tackle a Siting Challenge." May.

Biocycle (No primary author), 1990, "Pay-By-Bag Disposal Fees."

Biocycle (No primary author), 1992, "Solid Waste Composting in the United States: 1992 Project Survey." 33(11-12).

Braun, I. & Hinshaw, J., 1991, "Targeting Commercial Business for Recycling." Resource Recycling.

Breckinridge, C. & Skumatz, Lisa, A., ND, Variable Rates in Solid Waste - Handbook for Solid Waste Officials. Volume 1 - Executive Summary. (Prepared for the Environmental Protection Agency). Seattle, Washington.

Burn, Shawn M., 1991, "Social Psychology and the Stimulation of Recycling Behaviors: The Block Leader Approach." Journal of Applied Social Psychology 21(8).

Cable, S., 1992, "Contrast in Collection: Two European Examples." Resource Recycling, January.

Canada Mortgage and Housing Corporation, (October, 1992a), Rental Market Report, Toronto: CMA.

Canada Mortgage and Housing Corporation, (October, 1992b), Rental Market Report, Oshawa: CMA.

Canada Mortgage and Housing Corporation, (December, 1992c), Local Housing Market Report, Toronto.

Canada Mortgage and Housing Corporation, (Spring, 1993a), Toronto Real Estate Forecast, Toronto.

Canada Mortgage and Housing Corporation, (January, 1993b), Local Housing Market Report, Toronto.

Canadian Federation of Independent Business, 1991, The Green Grassroots: Small Business And The Environment.

Canadian Urban Institute, (1991a), The Greater Toronto Area: an Urban Region, WP-1, Urban Focus Series: Toronto.

Canadian Urban Institute, (1991b), Metro in Transition: An Overview of Demographic, Economic and Public Policy Trends and their Implications for the Social Development Strategy of Metropolitan Toronto, Urban Focus Series: 90-10, Toronto.

Canadian Urban Institute, 1992, Municipal Government in the Greater Toronto Area: Structure, Function, Issues and Intergovernmental Relations, Urban Focus Series: 92-8, Toronto.

Centre & South Hastings Recycling Board, 1992, Blue Box 2000: Interim Report, September.

Centre & South Hastings Recycling Board, 1992, Blue Box Plus, Quinte Regional Recycling Demonstration Program, August.

C.H. 2M Hill Engineering Ltd. (in association with KPMG, Peat Marwick Stevenson & Kellog and RIS Ltd.), 1993, Greater Vancouver Regional District Waste Flow and Recycling Audit.

City of Guelph (RIS), 1991, City of Guelph Wet/Dry Project - Summary of Preliminary Findings. April.

City of Toronto Economic Development Committee, 1990, Medium Term Demographic and Employment Projections. Report from the Commissioner of Planning and Development, November.

Clayton Research Associates Ltd., (October, 1989a), Projections of Population and Households in the Greater Toronto Area. (Prepared for the Office of the Greater Toronto Co-ordinating Committee and The Regional Planning Commissioners' Subcommittee on Population Projections).

Clayton Research Associates Ltd., (October, 1989b), Projections of Population and Households in the Greater Toronto Area: Technical Volume. (Prepared for the Office of the Greater Toronto Co-ordinating Committee and The Regional Planning Commissioners' Subcommittee on Population Projections).

Clayton Research Associates Ltd., (December, 1990), Review of Population Projections for the GTA: One Year Later. (Prepared for the Office of the Greater Toronto Area).

Clayton Research Associates Ltd., (December, 1991), Migration Trends in the Greater Toronto Area. (Prepared for the Office of the Greater Toronto Area).

Compost Management Associates Ltd., 1990, A Field Examination of the Cost-Effectiveness, Waste Diversion Potential, and Homeowner Acceptance of Three Different Backyard Composting Units. (Prepared for the Works Department, Regional Municipality of Durham).

Compost Management Associates Ltd., 1992a, Region of Durham Backyard Composting Study, Draft Report. (Prepared for the Region of Durham).

Compost Management Associates Ltd., 1992b, A Field Examination of the Cost Effectiveness, Waste Diversion Potential, and Homeowner Acceptance of Backyard Composting Units. Phase II: The Pickering Research. (Prepared for the Region of Durham).

Compost Management Associates Ltd., 1992, A Field Examination of the Cost-Effectiveness, Waste Diversion Potential, and Homeowner Acceptance of Three Different Backyard Composting Units. (Prepared for the Region of Durham).

Croll, Timothy. & Gale, D., 1989, Crisis as Opportunity: The Seattle Solid Waste Revolution. Seattle SWU.

Curtis, Cynthia C., Brenniman, Gary, R. & Hallenbeck, William H., 1991, Municipal Solid Waste Composting: Technologies, Health Effects, Effects on Plant Growth and Yield, Regulations, and Descriptions of U.S. Sites. University of Illinois Center for Solid Waste Management and Research. Chicago.

David, M., 1991, "Collecting Garbage by the Pound." MSW Management, July/August: 34-38.

De Boerr, H., ND, "Hotels Checkout Green Credentials." Recovery.

Decima Research, 1991, The Decima Quarterly Report - Environment Today. Fall.

Decima Research, 1992, The Decima Quarterly Report - Environment Today. Spring.

Decima Research, 1992, The Decima Quarterly Report - Environment Today. Summer.

Decima Research, 1992, The Decima Quarterly Report - Environment Today. Fall.

De Young, R., 1990, "Recycling as Appropriate Behaviour: A Review of Survey Data from Selected Recycling Education Programs in Michigan." Resources, Conservation and Recycling, V.3. Eslevier Science publishers B.V./Pergamon Press plc, Netherlands.

De Young, R., et al., 1991, Individual Source Reduction Behaviour: A Study of the Effect of Environmental and Economic Motivational Information. School of Natural Resources, University of Michigan.

De Young, R., 1993, "Changing Behaviour and Making it Stick", Environment and Behavior, July, 1993: 485-503.

De Young, R., Duncan, A., Frank, J., Gill, N., Rothman, S., Shenot, J., Shotkin, A. & Zweizig, M., 1993, "Promoting Source Reduction Behavior: The Role of Motivational Information." Environment and Behavior, 25(1), January.

Duales System Deutschland GmbH., 1990, Der Grüne Punkt. Don't Let Packaging Go to Waste. (A description of the Green Dot Program.) Backed by the Confederation of German Industry and the Federation of German Chambers of Industry and Commerce.

Duns Marketing Services, Dun & Bradstreet Canada, 1991, Market Survey of Environmental Expenditures by Canadian Business. (Prepared for Environment Canada).

Dussault Jr., Allen J., 1989, "An Example of State Encouragement." In The Biocycle Guide to Yard Waste Composting. The J.G. Press Inc. Emmaus, Pennsylvania.

Ekstrom, Barbara & La Barre, S., 1992, "Trashtags and Trash Lite: Tompkin County's (N.Y.) Fee-Based Model for Waste Reduction." In Destination Elimination: An Economic View. Recycling Council of Ontario - 13<sup>th</sup> Annual Conference. Oct. 7-9, 1992. Ottawa: (Partial Proceedings).

Elway Research Inc., 1991, Participation Study for the Curbside/Alley Residential Recycling Program. (Prepared for Seattle SWU).

Environics Research Group Ltd., 1990, Public Attitudes Toward Waste Management: A Survey of Residents of the Greater Toronto Area. Final Report. (Prepared for the Solid Waste Interim Steering Committee).

Environics Research Group Ltd., 1992a, The Metropoll Report. Report to the Ontario Ministry of Environment on Issues Surrounding Waste Mangement in the Greater Toronto Area.

Environics Research Group Ltd., 1992b, "User Fees for Specific Municipal Services." Focus Ontario, 1.

Environmental Action Foundation, 1989-90, Source Reduction: Solid Waste Fact Packet. (Compiled by The Solid Waste Alternatives Project). Washington, D.C.

Environmental Sciences Research Centre, Université de Moncton, 1991, Composting: Its Role in Municipal Solid Waste Management. (Prepared for the Provincial Solid Waste Commissions and Environment). Moncton, New Brunswick.



Everett, Jess W. & Peirce, J. J., 1992, "Social Networks, Socioeconomic Status, And Environmental Collective Action: Residential Curbside Block Leader Recycling." Journal of Environmental Systems, 21(1).

Fishbein, Bette K., 1992, "European Packaging Initiatives: Leading the Way on Source Reduction." Resource Recycling, March.

Folz, David H. & Hazlett, Joseph M., 1990, "A National Survey of local government recycling programs." Resource Recycling. December.

Gale, Diane H., 1990, Testimony Before U.S. House of Representatives. Subcommittee on Transportation and Hazardous Materials. January 17.

Gale, Diane H., ND, The Use of Incentives in Solid Waste Planning: Seattle as a Case Study. Seattle SWU.

Gale, Robert J.P., 1991, Home Composting With the SoilSaver: An Empirical Study of Waste Diversion in the Regional Municipality of Hamilton-Wentworth. (Study conducted for Barclay Recycling Inc.) Toronto.

Gitlin, L., 1991, "Overlooked: Common wisdom says poor and minority communities don't recycle. Common wisdom is wrong." Recycling Today, September: 36-40.

Glenn, J., 1992, "Maturation of Materials Recovery Facilities." Biocycle, August.

Globe & Mail, 1993, Private haulers reduce garbage collection costs. May 4.

Globe & Mail (Higgins, Brian), 1993, Attack of the monster homes. May 10.

Globe & Mail (Macleod, Robert), 1993, Garbage pickup sabotage alleged. May 14.

Golob, Brian & Davis, C., 1990, "Addressing Public Concerns in Project Siting." Biocycle, September.

Golob, B., 1990, "How To Select The Right Location." Biocycle, August.

Gore & Storrie Ltd. (in association with Decima Research Ltd.), 1990, Residential Waste Composition Study, Volume I. Ontario Ministry of the Environment.



Gore & Storrie Ltd. (in association with Decima Research Ltd.), 1991 (reprinted Jan. 1993), Residential Waste Composition Study, Volume I of the Ontario Waste Composition Study. Ontario Ministry of the Environment.

Gore & Storrie Ltd., 1991, Commercial Waste Composition Study, Volume II of the Ontario Waste Composition Study. Ontario Ministry of the Environment.

Gore & Storrie Ltd., 1991, Procedures for the Assessment of Solid Waste - Residential and Commercial Volume III of the Ontario Waste Composition Study. Ontario Ministry of the Environment.

Governments Incorporating Procurement Policies to Eliminate Refuse, Committee. 1992. G.I.P.P.E.R.'s Guide to Environmental Purchasing. City of Toronto. October

Governments Incorporating Procurement Policies to Eliminate Refuse Committee. 1991. Directory of Suppliers of Environmentally Sound Products and Services. City of Toronto. Vol. I - January, Vol. II - June.

Government Incorporating Procurement Policies to Eliminate Refuse Committee. 1989. - 1992. Purchasing for a healthy environment. Newsletter, 6 issues.

Greater Toronto Home Builders' Association, 1991, Making a Molehill Out of a Mountain II, Technical Report: Renovation Pilot Projects. June.

Greater Toronto Home Builders' Association/ORTECH, 1991, Build Green Program: The Green Dream Home.

Greater Toronto Home Builders' Association, 1992a, Making a Molehill Out of a Mountain II, Technical Report: New Home Pilot Projects. July.

Greater Toronto Home Builders' Association/ORTECH, 1992b, Build Green Program: The Build Green Street.

Gregg, Allan, & Posner, M., 1990, The Big Picture. What Canadians Think About Almost Everything. Toronto: MacFarlane, Walter and Ross.

Hager, Lois, B., 1992, "Multi-Material Recycling in Urban Housing Authority Complexes." Resource Recycling, June.

Hay Management Consultants, 1990, Systems Breakdown: Opinion Leader Research Program. Canadian Environmental issues and Localities. "Not In My Back Yard."

Hemson Consulting Ltd., 1989, Employment Forecasts, The Greater Toronto Area, to 2031 - Appendices. (Prepared for the Greater Toronto Coordinating Committee and the Regional Planning Commissioner's Sub-Committee on Population, Household and Employment Projections).

Hemson Consulting Ltd., 1990, York Region, Population and Household Forecast, York Region Planning Department.

Hoornweg, Dan., Otten, L. & Wong, W., 1991, "Wet/Dry Household Waste." Biocycle, June.

Hopkins, Susan., 1993, City of Guelph 3Rs Programmes. March 12. Personal Communication with HSA, March 12, 1993.

Howenstine, E., 1993, "Market Segmentation For Recycling." Environment and Behavior, 25(1), January.

IBI Group (in Association with Stephen G. McLaughlin Consultants Inc.), (June 1990a), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 1, Description of Urban Structure Concepts. Greater Toronto Coordinating Committee.

IBI Group (in Association with Stephen G. McLaughlin Consultants Inc.), (June, 1990b), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 2, Minimal Growth Option. Greater Toronto Coordinating Committee.

IBI Group (in Association with various consultants), (June, 1990c), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 6, Human Services. Greater Toronto Coordinating Committee.

IBI Group (in Association with various consultants), (1990d), Greater Toronto Area Urban Structure Concepts Study: Background Report No. 7, Comparison of Urban Structure Concepts. Greater Toronto Coordinating Committee.

Institute of Grocery Distribution (in association with the European Recovery and Recycling Association), 1992, The Adur Project: An Integrated Approach to Environmentally and Economically Sustainable Waste Management. Policy Issues Program. August.

Interim Waste Authority Limited, (1991a), Draft Approach and Criteria for Metropolitan Toronto/York Region Landfill Site Search, Environmental Assessment Document I. August.

Interim Waste Authority Limited, (August, 1991b), Draft Approach and Criteria for Durham Region: Landfill Site Search, Environmental Assessment Document I.

Interim Waste Authority Limited, (1991c), Draft Approach and Criteria for Peel Region Landfill Site Search, Environmental Assessment Document I. August.

Interim Waste Authority Limited, 1992, The Long List of Candidate Sites For Peel Region Landfill Site Search Volume 2 of 2 - EA Document II Part 2. June.

Investor Responsibility Research Centre, 1991, Trash to Cash.

Kashmanian, Richard M. et. al., 1990, "Source Reduction and Recyclability: Recent Marketplace Activities." Resource Recycling. July:84-89.

Keir Consultants Inc., 1991, Commissioners Street Materials Recovery Facility Traffic and Noise Impact Analysis. (Prepared for the Municipality of Metropolitan Toronto Works Department). February.

Krivit, D. & Schmidt, S., 1992, "Variable Fee Systems in Minnesota." Biocycle. September.

Lansana, Florence M., 1992, "Distinguishing Potential Recyclers from Nonrecyclers: A Basis for Developing Recycling Strategies." Journal of Environmental Education, 23(2).

Laughlin, R.G.W. (Ortech International), 1992, "Waste Reduction In the Health Care Sector." In Destination Elimination: An Economic View. Recycling Council of Ontario - 13<sup>th</sup> Annual Conference. Oct. 7-9, 1992. Ottawa: (Partial Proceedings).

MacLaren, Virginia W., 1990, Metropolitan Toronto Home Composting Study. (Prepared for the Municipality of Metropolitan Toronto).

MacLaren Engineers, 1991, Application of Flow Control in Ontario. Report to Office of Waste Reduction. Ministry of the Environment. October.

MacViro Consultants Ltd., 1991, Report on a Strategy for the Management of Household Hazardous Wastes in the Greater Toronto Area. (Prepared for the Waste Reduction Office, Ontario Ministry of the Environment). September.

MacViro Consultants Ltd., 1992, Report on Investigations of Waste Audit Procedures and Mechanisms. (Prepared for the Waste Reduction Office, Ontario Ministry of the Environment). March.

Maritato, M.C., Algeo, E.R. & Keenan, R.E., 1992, "Potential Human Health Concerns From Composting." Biocycle, December.

MBI Case Studies (No primary author), ND, User-Pay in Two Regional Districts.

McDonald, D. & Vopni, P., 1992, Overcoming Barriers to Large-Scale Diversion of Municipal Solid Waste. Local Environmental Initiatives. Toronto.

McMahon, J., ND, "Variable Collection Rate Crusade Spurs Recycling Programs." World Wastes:36-40.

Metropolitan Toronto Planning Department, (April, 1989), Projections and their Policy Implications, Research and Policy Divisions.

Metropolitan Toronto Planning Department, (November, 1990), The GTA: Concepts for the Future.

Metropolitan Toronto Planning Department, (Dec. 1991), Scenarios for Future Growth: Demographic Interpretations.

Metropolitan Toronto Planning Department, 1992, Key Facts, 8.4, Employment Distribution within the Greater Toronto Area.

Metropolitan Toronto Planning Department, (January, 1993), Metro Facts. Research and Special Studies Division.

Metropolitan Toronto Works Committee, 1992, Home Composting Program Participants Survey. (for the Municipality of Metropolitan Toronto).

Miles, Jane A. & Minor, Larry W., 1987, Mecklenburg County Recycling Survey Pre-Treatment Phase. (Prepared for The University of North Carolina Institute for Transportation Research and Education). May.

Miles, Jane A. & Minor, Larry W., 1987, Mecklenburg County Recycling Survey Post-Treatment Phase. (Prepared for The University of North Carolina Institute for Transportation Research and Education). September.

Ministry of Treasury and Economics, (July, 1989), Demographic Bulletin, Population Projections for Regional Municipalities, Counties and Districts of Ontario to 2011. Office of Economic Policy.

Minnesota Office of Waste Management, 1990, Solid Waste Program Development Unit. Results of Phase 1 Itasca County Solid Waste Reduction Pilot Project. (Prepared by Pamela Wintrop Lauer).

Ontario Hydro, 1988, Little Jackfish River Hydroelectric Project Socio-economic Assessment Of The Generation Facilities. Social and Community Studies - Project Section Community Studies and Public Hearings Department Corporate Relations Branch. Report No. CSPH 88001.

Ontario Hydro, 1990, Big Chute GS Redevelopment Environmental Assessment. April.

Ontario Hydro, ND, Providing the Balance of Power: Ontario Hydro's Plan to serve Customers' Electricity Needs: Environmental Analysis. Ontario Hydro.

Ontario Management Board Secretariat, Realty Group, Project Management Branch, 1993a, Request for Information (#098M), Design Build Proponents: Ontario Government Relocation Program. February 12.

Ontario Management Board Secretariat, Realty Group, Project Management Branch, 1993b, Environmentally Conscious Design Requirements for Ontario Government Relocation Program: Design Build Projects. March.

Ontario Ministry of Environment, 1991, The Physical Economic Dimensions of Municipal Solid Waste Management in Ontario. (Prepared for Fiscal Planning and Economic Analysis Branch).

Ontario Ministry of Environment, October 1991, Initiatives Paper No. 1: Regulatory Measures to Achieve Ontario's Waste Reduction Targets.

Ontario Ministry of the Environment, 1991, Municipal Recycling and Household Conservation Behaviour - A Study of Guelph, Ontario. December.

Ontario Ministry of Environment (Waste Reduction Office), 1992, Preliminary Study of Construction and Demolition Waste Diversion Constraints and Opportunities.

Ontario Ministry of Environment, 1992, Meeting the Challenge: Reduction, Reuse & Recycling Activities in the Greater Toronto Area.

Ontario Ministry of Environment, March 1992, Initiatives Paper No. 2: Waste Management Planning in Ontario.

Ontario Ministry of Environment, June 1992, Initiatives Paper No. 4: Measuring Progress Towards Ontario's Waste Reduction Targets.



Ontario Ministry of Environment, May 1992, Waste Management Act - An Act respecting the Management of Waste in the Greater Toronto Area and to amend the Environmental Protection Act, 1992.

Ontario Ministry of Environment, May 1992, Waste Diversion Estimating Method for the Greater Toronto Area (GTA) 1987-2015.

Ontario Ministry of Environment and The Office for the Greater Toronto Area, June 1991, The Waste Crisis in the Greater Toronto Area: A Provincial Strategy for Action.

Ontario Ministry of Environment, January 1993, Market Assessment of 3Rs Activities in Ontario.

Ontario Ministry of Environment, January 1993, True Costs of Municipal Waste Management.

Ontario Ministry of Environment, January 1993, A Socio-Economic Assessment of Ontario: Waste Management Initiatives.

Ontario Ministry of Environment, 1992, Blue Box 2000 Interim Report. Quinte Regional Recycling.

Ontario Ministry of Municipal Affairs, March 1992, Municipal Waste Management Powers: A Discussion Paper. (in conjunction with the Ministry of the Environment).

Ontario Recycling Update (No primary author), 1991, "Group seeks to site centralized compost facility in city neighbourhood." Oct.- Nov.

Ontario Recycling Update (No primary author), 1991, "Communities Weigh User-Pay Pick-Up System." June.

Poole, T., 1992, "Participation in Residential Curbside Waste Reduction Programs." Resource Recycling, 11(10).

Proctor & Redfern Ltd., 1992, City of Mississauga's Waste Minimization Demonstration Pilot Project. Six Months Status Report. September.

Recycling Council of Ontario, 1993, "User Pay Presentation." CIELP Conference, January.

Redd, A., 1992, "Germany Recycles Packaging Material: Legislation passed in April 1991 by the German Parliament may revolutionize the recycling of packaging in that country, and the rest of Europe." Waste Age, January:50-58.

Regional Municipality of Durham, (1990a), Commissioners Report No. 90-204, to Planning Committee, Population Forecasts for the Region of Durham and Area Municipalities by Five-Year Age Groups. September.

Regional Municipality of Durham, (1990b), Commissioners Report No. 90-27, to Planning Committee. January.

Regional Municipality of Durham, (1992), Commissioners Report No. 92-P-85, to Planning Committee, Differences between Ministry of Revenue Population Enumeration (Assessed) and Census Population 1991 - Interim Report. June.

Regional Municipality of Halton, (1993), Region of Halton, 1992/93 Industrial Directory.

Regional Municipality of York, (1989), Profile.

Regional Municipality of York, (1990), Table: Allocation of York Region Total Employment.

Regional Municipality of Waterloo, 1993, Results of the Telemarketing Survey of Industrial Businesses, Cities of Cambridge, Kitchener, and Waterloo. (Personal Communication).

Resource Integration Systems (RIS) Ltd., 1990, Generator Pay Systems for Households. (Prepared for the Recycling Advisory Committee). April.

Resource Integration Systems (RIS) Ltd., 1990, Draft Report - Survey and Assessment of the Environmental Implications of Selected Retail Products and Packages in Canada. (Prepared for the Retail Council of Canada). July.

Resource Integration Systems (RIS) Ltd., 1991, The National Waste Reduction Handbook. An Introduction to Source Reduction & Recycling for Municipal Decision-Makers. (Prepared for The National Round Table on the Environment and the Economy). February.

Resource Integration Systems (RIS) Ltd., 1991a, Characterization of ICI Recycling in Ontario. (Prepared for Ontario Multi-Materials Recycling Inc.) February.

Resource Integration Systems (RIS) Ltd., 1991, "Communities Weigh User-Pay Pick-Up System." Ontario Recycling Update. June.

Resource Integration Systems (RIS) Ltd., 1992, Barrie MORE Program Report. (Prepared for Ontario Multi-Materials Recycling Inc). September.

Resource Integration Systems (RIS) Ltd., 1992, Final Report - National Waste Minimization Study. (Prepared for Quick Service Restaurant Council). Toronto.

Resource Integration Systems (RIS) Ltd., 1992, Seattle - Selected Case Study. Fact Sheets.

Scarborough Mirror, 1993, Largest increase of glass collected in '92 came from business. April 7.

Seattle SWU, 1989, Fact Sheet. Seattle, Washington.

Sherman, S., 1991, "Local Government Approaches to Source Reduction." Resource Recycling. September:112-119.

Sims, Kathy L. & Beesley, Neil H., 1992, "Composting Food Waste - Metropolitan Toronto." In Destination Elimination: An Economic View. Recycling Council of Ontario - 13<sup>th</sup> Annual Conference. Oct. 7-9, 1992. Ottawa: Partial Proceedings.

Skibiski, Kevin C., 1992, "Gaining Public Support by Design." Biocycle. August.

Spaccarelli, Steve, Zolik, Edwin & Jason, Leonard, A., 1990, "Effects of Verbal Prompting and Block Characteristics on Participation in Curbside Newspaper Recycling." Journal of Environmental Systems, 19(1).

Sparks, Edward P., 1992, "What You Should Know About MRF's." In Destination Elimination: An Economic View. Recycling Council of Ontario - 13<sup>th</sup> Annual Conference. Oct. 7-9, 1992. Ottawa: Partial Proceedings.

Statistics Canada, July 1992, Households and the Environment 1991. Catalogue No. 11-526.

Steuteville, Robert., 1992, "Taking the Lead in Urban Recycling." Biocycle. November:30-33.

Stone, S., 1991, Tompkins County Trashtag and Recycling Study. Department of Consumer Economics & Housing, Cornell University. Ithaca, N.Y.

Taylor, P., 1993, "The First Year with Wet/Dry Composting: A Report from the Field." Resource Recycling. January.

The Solid Waste Alternatives Project (SWAP). Environmental Action Foundation. Source Reduction (Solid Waste Fact Packet). Washington, D.C.

The Staff of Biocycle, 1990, "Enforcing Marketing Ordinances." In The Biocycle Guide To Collecting, Processing and Marketing Recyclables. The J.G. Press Inc., Emmaus, Pennsylvania.

The Staff of Biocycle, 1990, "Drafting A Mandatory Recycling Ordinance." In The Biocycle Guide To Collecting, Processing and Marketing Recyclables. The J.G. Press Inc., Emmaus, Pennsylvania.

Thivierge, M., 1992, "Gananoque's Experience With User Pay Waste Disposal." In Destination Elimination: An Economic View. Recycling Council of Ontario - 13<sup>th</sup> Annual Conference. Oct. 7-9, 1992. Ottawa: Partial Proceedings.

Thogersen, J., 1991, Changing Consumer Attitudes and Behavior: Lessons from Danish Source Separation Programs. Department of Marketing, The Aarhus School of Business, Denmark.

Toronto Star (DeMara, Bruce), 1993, Garbage pickup "chaos" blamed on weekly service. May 11.

Toronto Star (James, Royson), 1993, Blue box, composting to be low in Ontario. May 1.

Uhlar-Heffner, G., ND, City of Seattle Yard Waste Collection Programs. Seattle SWU.

University of Guelph, December 1991, Municipal Recycling and Household Conservation Behaviour #508G - A study of Guelph, Ontario. Ontario Ministry of the Environment.

USA Today, 1991, Composting catches on, but some say it stinks. August 19.

Vining, Joanne & Ebreo, A., 1992, "Predicting Recycling Behavior from Global and Specific Environmental Attitudes and Changes in Recycling Opportunities." Journal of Applied Social Psychology, 22(20).

Von Roeder, Bille (of Recycling Development Corporation), 1992, "Trade Implications of the International Packaging Initiatives: Focus on the German Packaging Ordinance and Dual System." (Paper delivered to Recycling Council of Ontario, 13th Annual Conference, Ottawa, Ontario, October 9).







